



Public Utility Commission of Texas

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Public Utility Commission
of Texas

Pat Wood, III
Chairman

Robert W. Gee
Commissioner

Judy Walsh
Commissioner

December 12, 1996

Honorable Members of the Seventy-Fifth Texas Legislature:

We are pleased to submit our 1997 Report on the Scope of Competition in Telecommunications Markets as required by Section 3.051(k) of the Public Utility Regulatory Act of 1995.

Since the Texas Legislature adopted significant telecommunications legislation in 1995, changes in the structure of this industry have occurred at an accelerated pace. Concurrent with the PUC's implementation of the regulatory reforms contained in PURA95, Congress passed the Federal Telecommunications Act of 1996, which mandates additional major steps toward competition in the local and long distance telecommunications markets.

At a time when the industry is experiencing rapid change, the Commission recognizes the Legislature's need for up to date, accurate information. The enclosed report provides a thorough discussion of current developments for your use as you consider the important issues of telecommunications regulation and competition. If you need additional information about any issues addressed in the report, please call on us.

Sincerely,

Pat Wood, III
Chairman

Robert W. Gee
Commissioner

Judy W. Walsh
Commissioner



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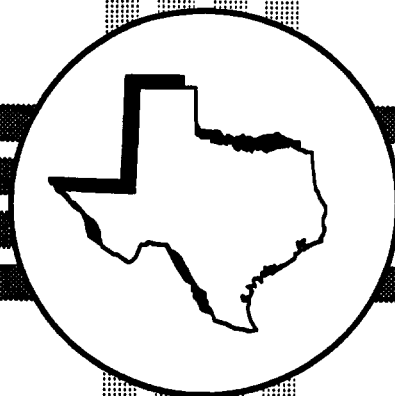
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**Report to the
Seventy-Fifth
Texas Legislature
on the
Scope of Competition
in Telecommunications
Markets**

***Public Utility Commission of Texas
January 1997***

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CHAPTER 1

EXECUTIVE SUMMARY

The paradigm is *change*. Never before has the telecommunications landscape in Texas been so fluid. New entrants. New markets. New statutes. New regulatory approaches.

Previous Reports To The Texas Legislature On The Scope Of Competition In Telecommunications Markets have focused on the relatively isolated emergence of competition in limited markets such as customer premises equipment and long distance services. Events within the past two years in Texas and across the nation have accelerated the removal of competitive barriers and have spurred efforts to require open interconnection among competing telecommunications networks. First with the 1995 revisions of the Public Utility Regulatory Act in Texas, followed by passage of the 1996 federal Telecommunications Act, lawmakers have provided unmistakable direction to regulators that the vision of the past must change.

This report provides an update on firms offering telecommunications services, along with descriptive information on the types of carriers and services and the regulatory changes in progress. Because of the timing of this report and current events in Texas and across the nation, this is merely a snapshot in time indicating the status of competition in telecommunications as 1996 draws to a close. It will be several more years before we can gain a truly comprehensive perspective on the scope and progression of the many significant changes in the telecommunications market.

One cannot pronounce that competition does or does not exist in telecommunications. There are many markets, and the degree of competitiveness varies widely among services, geographic locations, and types of customers. Long distance services, as an example, have become increasingly competitive during the past ten years, although the market is currently best described as a tight oligopoly rather than being fully competitive. Competitive networks have emerged for the provision of private line and access services, and many changes have recently taken place with regard to the provision of payphone services. Local exchange services are now only beginning to experience competition; however, current legislative and regulatory actions promise to rapidly increase the competitiveness of local markets.

Lawmakers and regulators have struggled with the public policy puzzle of cultivating the benefits of competition in this industry without disrupting the overall excellence of the nation's telecommunications network. In Texas, the Public Utility Regulatory Act of 1995 (PURA95) became effective on September 1, 1995, and the federal Telecommunications Act of 1996 (FTA96) was enacted shortly thereafter on

February 8, 1996. The Public Utility Commission of Texas (PUC or Commission) has had a unique challenge before it in harmonizing the two statutes and ensuring that the public interest is served. It is the Commission's expectation that all customers will eventually receive benefits from effective competition. Until markets are effectively competitive, however, safeguards and incentives must be judiciously applied to service providers and the impact must be closely monitored.

Competition in Local and Long Distance Services

As of the end of 1995, competition in local exchange services was insignificant, and generally confined to the provision of shared tenant services by property owners (also known as residential multi-tenant services, or RMTS) and cellular services. PURA95, however, has created new opportunities for competition in this market by allowing companies to obtain either a *Certificate of Operating Authority* (COA) or a *Service Provider Certificate of Operating Authority* (SPCOA) to compete with the existing 59 incumbent local exchange companies, including Southwestern Bell Telephone Company and GTE Southwest, Inc. Although competition is still extremely limited in this segment of the market, the fact that more than 70 new entrants have been granted either a COA or SPCOA indicates that Texas is on the brink of competition; it is safe to assume that a significant increase in competitive activity will come about during the next biennium.

Over 1,000 non-dominant carriers are registered with the Commission, many of which provide long distance service in the state of Texas, but the level of effective competition in this segment of the market is significantly less than the large number might suggest. The four largest facilities-based interexchange carriers together accounted for 91 percent of the intrastate long distance revenues in 1995, demonstrating that this market can best be characterized as a tight oligopoly.

Dramatic changes are occurring in the provision of payphone service. Competitive provision of payphone service is not new, but a recent series of decisions by the Federal Communications Commission (FCC) require the deregulation of all payphones owned by incumbent local exchange carriers (ILECs) and changes to the methods of compensation for payphones. This deregulation is a major step in response to what the FCC views as a competitive market; in 1995, however, the Texas Legislature viewed the payphone market as one that needed additional regulations to protect the public interest. The regulatory change in payphones clearly illustrates the need for federal-state cooperation in major changes of this type, as well as the need for implementation of consumer safeguards in concert with the roll-back of regulations for partially competitive services.

Emerging Competitors

The wireless segment of the telecommunications market continues to grow dramatically each year. At the end of 1995, national subscribership to wireless services had reached 33.7 million subscribers, a 46 percent increase in new users since the middle of 1994. In 1995, the first Personal Communications Service (PCS) network debuted, thus providing a new family of wireless services to existing cellular services. Continued

rapid growth in both PCS and traditional cellular services is expected over the next several years.

Cable television operators are positioning themselves to become competitors in the local exchange telecommunications market. There is little consensus among industry observers, though, regarding the potential competitive threat posed by cable companies. Some view cable operators as formidable competitors because of their extensive broadband infrastructure already in place, yet others believe that most cable companies do not have sufficient capital to compete with incumbent local exchange providers. In Texas, Time Warner Communications is the only major cable television firm known to be actively seeking to compete in the local exchange market. Time Warner has obtained a Certificate of Operating Authority from the Commission, and has entered into an interconnection agreement with Southwestern Bell.

Internet telephony, or Voice Over Net, is a relatively new technology for placing long distance calls. The technology allows a person to use a microcomputer to make long distance telephone calls for the price of a local call. Although the quality of Internet telephony is substantially lower than that of the standard public switched telephone network, improvements are being made at a furious pace. Because of the substantial savings that can be realized by users, particularly those who make international calls, Internet telephony may pose a significant competitive threat to traditional long distance carriers. The number of Internet telephony users is expected to grow from approximately 30,000 users in 1995 to ten million by the year 2000.

Electric utilities are a fourth major group of emerging competitors in telecommunications markets. Traditionally, electric utilities have been some of the heaviest users of telecommunications, and recently these companies have been upgrading their already extensive networks with fiber optic infrastructure. With this infrastructure in place and with internal engineering and operations personnel already experienced in the design and maintenance of telecommunications networks, electric utilities are poised to compete with other providers of telecommunications. In addition, federal legislation has removed barriers to entry for registered utility holding companies that were previously limited to energy production, by allowing such companies to establish separate telecommunications affiliates called "exempt telecommunications companies" (ETCs). In Texas, CSW Communications is an ETC, owned by Central and South West Corporation, that has obtained a franchise from the City of Austin to provide telecommunications services throughout the city. It is likely that other electric utilities will choose to enter the telecommunications market in a similar manner.

Competitive Safeguards

Since PURA95 became effective September 1, 1995, the PUC has been engaged in new rulemaking and contested-case proceedings to implement essential competitive safeguards, including provisions related to unbundling, resale, imputation, number portability, interconnection, expanded interconnection, costing and pricing, and

infrastructure sharing. Implementation of these safeguards will ensure a level playing field among competitors and promote an environment in which fair competition can flourish.

Consumer Issues

Competition in telecommunications markets brings about a mixed blessing from the viewpoint of the individual consumer. Benefits such as increased deployment of new technology and new services, innovative packaging of services, choice of providers, and competitive prices for services are welcomed by consumers. At the same time, however, individuals face new challenges with the onset of local exchange competition, requiring a higher level of consumer savvy to reap the maximum benefits available. The Commission is concerned with a number of possible deceptive or problematic business practices associated with increased competition, such as "slamming," billing irregularities, and deceptive operator services practices. In addition, quality of service, area code changes, and Caller ID issues are areas that will continue to require close attention from the Commission.

Universal Service

Over the past three decades, regulators have made great strides toward reaching the goal of universal availability of telephone service at reasonable rates. In Texas, subscribership is 91.4 percent of households, which is slightly lower than the national average of 93.9 percent. This level of subscribership has been achieved through a combination of support payments and subsidies, low-interest construction loans, and lifeline rate programs.

The onset of competition in the local exchange market is requiring both federal and state regulators to reevaluate current universal service programs to ensure that consumers' needs are met and all telecommunications providers are treated fairly. Provisions of FTA96 require the FCC to adopt new universal service rules by May 1997; similarly, the PUC has undertaken a project to investigate restructuring of the Texas universal service program.

Infrastructure Modernization

PURA95 established several policy goals for infrastructure modernization in the State of Texas. By December 31, 2000, all local exchange companies are required to provide, at a minimum: single party service; tone dialing; basic custom calling features; equal access for interLATA interexchange companies upon request; and digital switching upon customer request. At the present time, all ILECs in Texas with the exception of GTE are providing single party service in all exchanges; GTE has stated that it plans to meet this requirement by the statutory deadline. All ILECs currently are capable of providing tone-dialing and basic custom calling services. In addition, 99 percent of Texas subscribers have equal access, allowing them to access their preferred long distance carrier by dialing "1+" or "0+".

Companies who elected into one of the two alternative regulation plans outlined in PURA95 are required to comply with additional modernization requirements beyond those described above. Southwestern Bell and GTE have elected into the incentive regulation plan contained in Subtitle H of PURA95, and Sprint-United and Sugar Land Telephone Companies have opted into the plan under Subtitle I, and thus they must complete certain improvements within the statutory time frame. Infrastructure reports filed at the Commission indicate that progress toward these goals is being made by those electing companies. Finally, the electing companies are required to make special infrastructure commitments to certain educational institutions, libraries, and hospitals.

Programs for Schools, Libraries, and Medical Providers

As mentioned above, companies who elected into one of PURA95's alternative regulation plans are required to make infrastructure commitments to certain educational institutions, libraries, and hospitals. These entities are allowed to obtain certain broadband telecommunications services at a discounted rate, with installation and construction charges waived. In addition, Southwestern Bell is required to provide toll-free connections or dialing arrangements for use by educational institutions or libraries to access the Internet in exchanges where toll-free access to the Internet is otherwise unavailable. Finally, all ILECs are to provide discounted rates for services related to distance learning and information sharing programs. Information supplied in preparation of this report reveals that a large number of public entities are taking advantage of these programs to receive discounted services.

Competition in Rural Areas

Policy makers must develop tools that promote technological advancements, reasonable rates, and other benefits of competition for residents of rural and other areas where competition is expected to develop more slowly. The 74th Texas Legislature crafted such tools in statutory language that mandated the modernization of the telecommunications network in our state. Congress also recognized the need to extend the benefits of competition to rural areas, requiring access to reasonably comparable services at reasonably comparable rates compared with those available in urban areas. Data gathered for this report show that modernization is, in fact, taking place and that the specific timelines set by the Texas Legislature are likely to be met.

Conclusion

Instead of retaining traditional regulatory practices centered on control of monopolies, the regulatory vision is refocusing on the appropriate balance between incumbent and emerging service providers, with the implementation of proper safeguards for effective competition and consumer protection. The Public Utility Commission of Texas and its sister regulatory agencies -- including the Federal Communications Commission -- are working to implement the new statutes in a rapid, yet well-reasoned, fashion.

CHAPTER 2

INTRODUCTION

The *1997 Report to the Texas Legislature on the Scope of Competition in Telecommunications Markets* marks the fifth such report prepared by the Public Utility Commission of Texas. The reports were begun as a result of extensive revisions made to telecommunications utility regulation by the 70th Texas Legislature in 1987, and the need to monitor the effects of those changes. The Public Utility Regulatory Act was revised in its entirety in 1995 by the 74th Texas Legislature, but the following language concerning this report was retained:

Section 3.051(k) Before January 15 of each odd-numbered year, the commission shall report to the legislature on the scope of competition in regulated telecommunications markets and the impact of competition on customers in both competitive and noncompetitive markets, with a specific focus on rural markets. The report shall include an assessment of the impact of competition on the rates and availability of telecommunications services for residential and business customers and shall specifically address any effects on universal service. The report shall provide a summary of commission actions over the preceding two years which reflect changes in the scope of competition in regulated telecommunications markets. The report shall also include recommendations to the legislature for further legislation which the commission finds appropriate to promote the public interest in the context of a partially competitive telecommunications market.

In this era of dramatic change in telecommunications markets and regulation, it is critical that the market be monitored to ensure that the public interest is being served. The *1997 Report to the Texas Legislature on the Scope of Competition in Telecommunications Markets* focuses on the legislative background of telecommunications utility regulation today, the activities of the PUC in implementing PURA95, and the dynamics of local, access, and toll markets. It also examines the impact of competition in telecommunications from the perspective of consumers in various service markets and geographic areas throughout Texas. Finally, the report contains -- as directed -- recommendations to the Legislature for further revision in the law that will promote the public interest.

Existing Structure of the Industry

The telecommunications industry in Texas is as diverse as our great state itself. Incumbent local exchange carriers (ILECs) traditionally have provided basic switched local services to the state's residents in over 1200 exchanges. While Southwestern Bell Telephone Company (Southwestern Bell or SWB) serves the vast majority of Texas residents, 58 other ILECs serve their own exchanges. ILECs in Texas range in size from fewer than 100 access lines to over eight million lines.

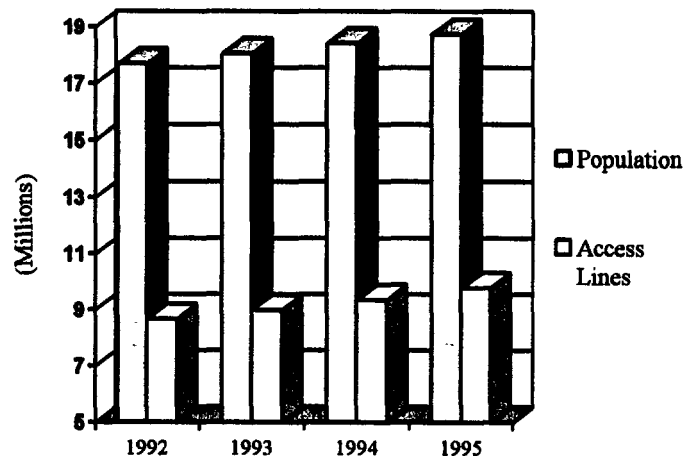
In addition to the ILECs, many other types of carriers provide services to our residents. Interexchange carriers (IXCs) offer long distance telephone services between ILEC exchanges. AT&T, MCI, and Sprint are the most well-known interexchange carriers; however, hundreds of IXCs currently operate in Texas. Texans also receive services from myriad other types of telecommunications providers, including wireless and cellular service providers, competitive access service providers, operator service providers, shared tenant service providers, and private pay telephone service providers.

INCUMBENT LOCAL EXCHANGE CARRIERS

A total of 59 ILECs currently provide service to about 10 million basic business and residential access lines in Texas. Since 1992, the growth in access lines has been approximately 4.3 percent per year. Figure 2.1 compares this growth to the population growth of Texas, which has been about 1.9 percent annually.

Historically, ILECs have been allowed to serve specific geographic areas of the state -- known as exchanges -- under certification by the Texas PUC. Although certain niche resale markets have appeared in recent years, customers in a specific exchange have generally not been able to choose the company that provides their basic local service dial tone. As is discussed in detail throughout this report, the historical monopoly landscape is being reshaped by competitive forces. However, it is useful to begin this introduction by describing the serving arrangements as they existed at the end of 1995, prior to the introduction of widespread local exchange competition.

Figure 2.1: Texas Growth Indicators



Source: ILEC Data Request, U. S. Census Bureau Data

Southwestern Bell is the largest ILEC in Texas, serving over 8 million access lines in both urban and rural areas. The map in Figure 2.2 shows Southwestern Bell's serving area, distinguishing between large (over 3,000 access line) and small (below 3,000 lines) exchanges.

Southwestern Bell's local exchanges include the major metropolitan areas of Texas; Houston, Dallas, San Antonio, Austin, Fort Worth, El Paso, Waco, and other highly populated areas.

Figure 2.2: Southwestern Bell Exchanges

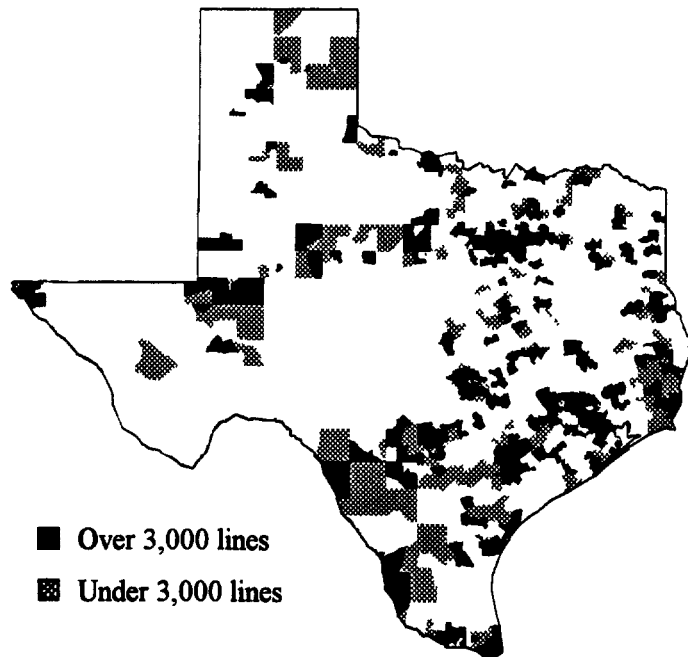
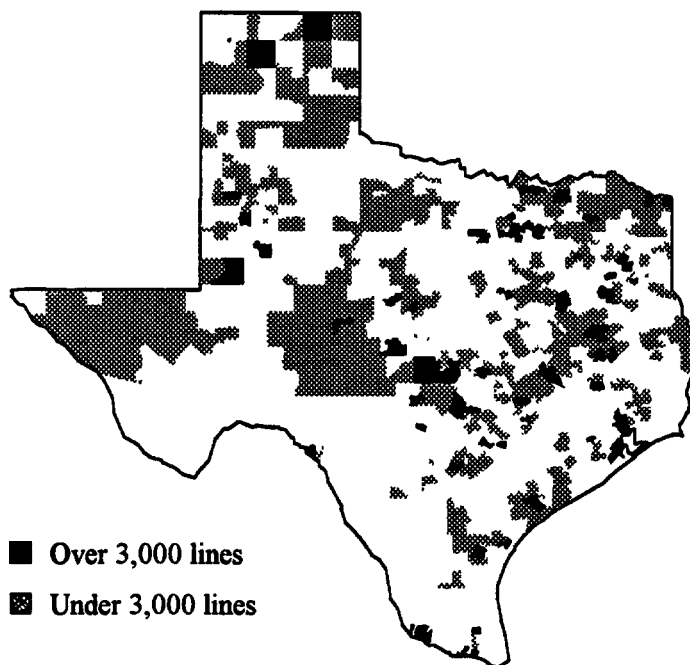


Figure 2.3: GTE Exchanges

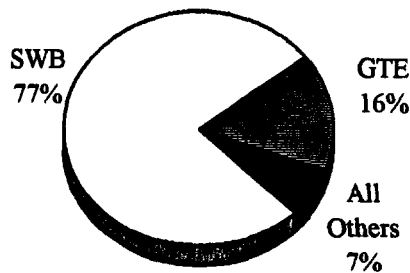


GTE of the Southwest, Inc. (GTE) is the second-largest ILEC in Texas, serving over 1.6 million access lines after its 1991 merger with Contel. GTE serves fewer urban areas than does Southwestern Bell, and serves a large number of medium and smaller communities.

Together, Southwestern Bell and GTE serve over 93% of the access lines in Texas (see Figure 2.4). The remaining 57 ILECs serve the remaining 7% of the access lines. Figure 2.5 illustrates the disparity in the size and density of the areas served, as the smaller ILECs with 7% of the access lines serve about 40% of the land area of Texas.

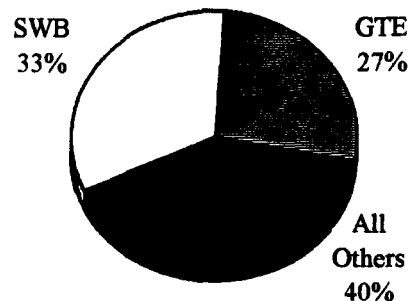
ILEC revenues have experienced substantial growth during the period from 1992 to 1995, as shown in Figure 2.6. As will be described in more detail in Chapter VIII, the revenue growth appears to be the result of increased sales and usage in almost all service categories.

Figure 2.4: Access Lines Served - 1995



Source: ILEC Data Request

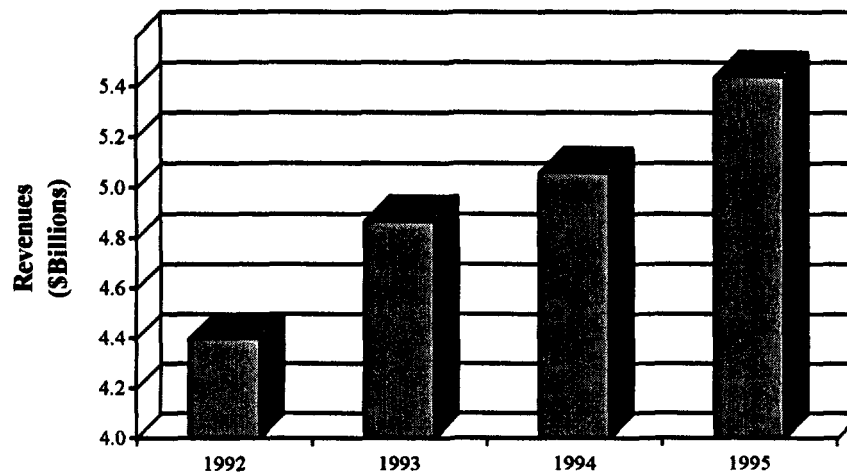
Figure 2.5: Square Miles Served - 1995



Source: ILEC Data Request

A listing of ILECs, including their 1995 year-end access lines and intrastate revenues, can be found in Appendix A of this report.

Figure 2.6: ILEC Texas Intrastate Revenues



Source: ILEC Data Request

SMALL INCUMBENT LOCAL EXCHANGE CARRIERS

PURA95 §3.213(b) defines a small ILEC as one that is a cooperative corporation or has fewer than 31,000 access lines. This definition essentially includes all investor-owned and cooperative ILECs with the exception of Alltel/Sugar Land, Lufkin-Conroe, the Sprint companies (formerly Centel and United), GTE, and Southwestern Bell. Small ILECs as defined under PURA95 are allowed to introduce new services and make minor rate changes with more regulatory flexibility than in the past. In addition, small ILECs are protected to some extent against the entry into their service areas by competitors.

As of November 1, 1996, small ILECs had filed a total of nineteen tariff filings under the small company flexibility rules found in PUC Subst. R. § 23.94.

<i>In Texas:</i>	
Large ILECs:	6
<i>Small ILECs:</i>	
Cooperative ILECs:	25
Small Investor-Owned ILECs:	28

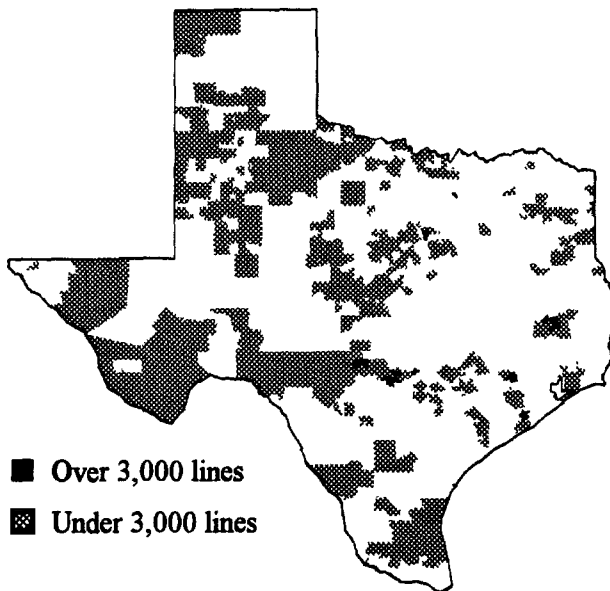
Small ILECs possess several operating characteristics that distinguish them from the larger companies. They typically serve the more rural, less densely populated areas of the state, as shown in Figure 2.7. The small ILECs generally rely more heavily on revenue support mechanisms such as the intraLATA toll pool and the interstate universal service fund. In addition, small ILECs traditionally have had access to more favorable funding terms for infrastructure development from the U.S. Department of Agriculture's Rural Utilities Service (RUS) -- formerly the Rural Electrification Administration -- and the Rural Telephone Bank. Due in part to those mechanisms, many small ILECs have been able to construct infrastructure improvements beyond those built by the larger companies. As discussed in Chapter 10 of this report, most small companies have provided 100 percent digital switching and other desirable service features for their customers.

The federal Telecommunications Act of 1996 (FTA96) provides a definition of "rural" telephone companies for purposes of application of certain portions of that statute. According to FTA96, a rural telephone company is one that:

- does not serve an area that includes:
 - any incorporated place of 10,000 inhabitants or more, or
 - any territory included in an "urbanized" area;
- provides exchange service to fewer than 50,000 access lines;
- provides exchange service to a combined study area with fewer than 100,000 access lines; or
- has less than 15 percent of its lines in communities of more than 50,000.

Rural telephone companies under FTA96 are afforded specific protections from competitors in a similar fashion as the safeguards in PURA95. For example, rural telephone companies receive specific exemptions from the FTA's § 251 interconnection requirements until certain determinations are made.

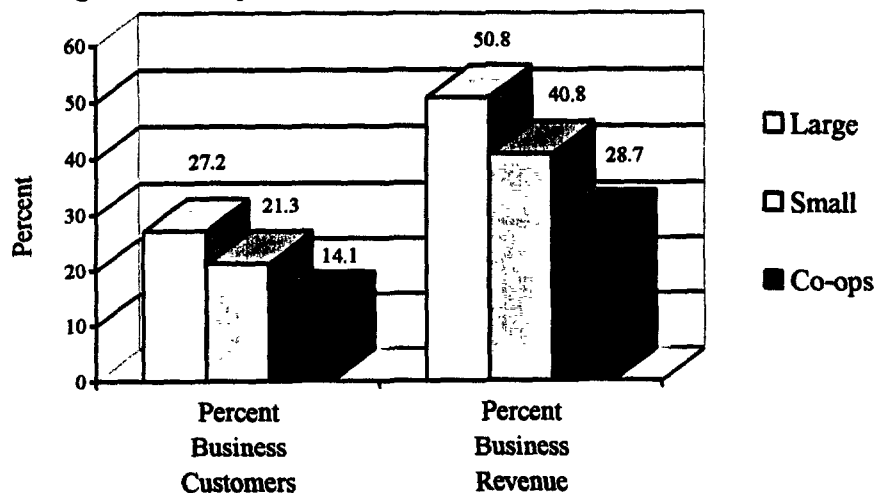
Figure 2.7: Small ILEC Exchanges



Another distinguishing characteristic of small ILECs is their reliance on residential customers rather than business customers for their service revenues. As Figure 2.8 illustrates, small ILECs have a much smaller base of business customers, and thus a smaller percentage of business local service revenue than do the large ILECs. These percentages are relative to total customers and total local exchange revenues (including basic and non-basic revenues, but not including access or toll revenues.)

Source: Responses to 1996 ILEC Data Requests

Figure 2.8 Comparison of 1995 Business Customers and Revenue



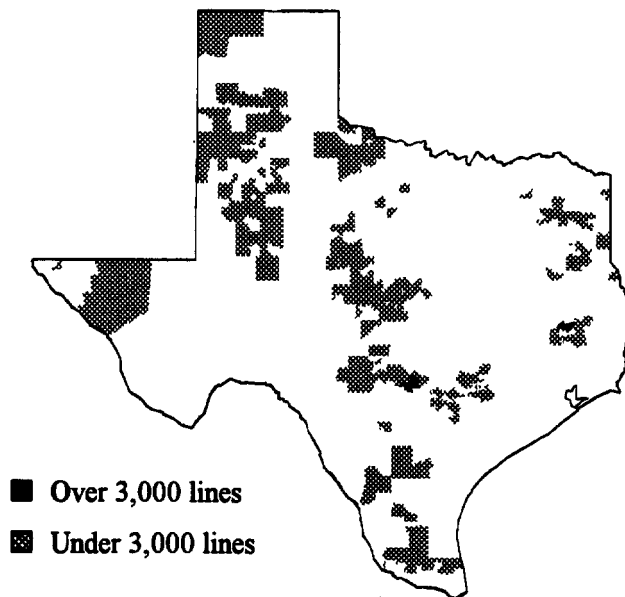
Source: Responses to 1996 ILEC Data Request

COOPERATIVE TELEPHONE COMPANIES

Twenty-five of the ILECs in Texas are organized as cooperative corporations. The cooperatives' service areas are shown in Figure 2.9. In addition to receiving special consideration as small ILECs, PURA95 has also recognized the special status of cooperatives in allowing their partial deregulation after an affirmative vote of the cooperative's membership. This partial deregulation allows the cooperative to make changes in its rates or tariffs or offer extended local calling services, without regulatory approval, in accordance with the requirements in the statute.

As of November 1, 1996, three cooperatives -- Poka-Lambro Telephone Cooperative, Central Texas Telephone Cooperative, and Valley Telephone Cooperative -- have completed the process of partial deregulation allowed in PURA95. A fourth, Colorado Valley Telephone Cooperative, has filed a notice to change rates under this provision of PURA.

Figure 2.9: Cooperative ILEC Exchanges



LONG-DISTANCE (INTEREXCHANGE) CARRIERS

With the divestiture of the Bell Companies from AT&T and the introduction of access charges -- both of which occurred in 1984 -- a new breed of carrier began to thrive. Interexchange carriers, such as AT&T, MCI, Sprint, and LDDS/WorldCom, transport and switch calls over long distances between ILEC exchanges. Since 1984, the IXC service market has become increasingly competitive. In 1993, the Texas Legislature determined that the market was sufficiently competitive to designate the largest carrier, AT&T, as non-dominant -- and it was therefore removed from the regulatory jurisdiction of the PUC.

Previous years' *Reports to the Legislature on the Scope of Competition in Telecommunications Markets* have focused a great deal of attention on the interexchange

market, as the competitive status of this market was of considerable concern to policy-makers in earlier years. However, because the interexchange market is no longer an emerging competitive market but has been subject to competition for many years, this report shifts its attention toward the more dynamic activities of emerging competition in local exchange service markets.

OTHER EXISTING COMPETITIVE ENTITIES

Other competitive markets and participants are addressed in this report.

Competitive Access Providers (CAPs), relegated in the past to the provision of private line and access bypass services, are now poised to become full-fledged competitors in the local exchange market. **Shared Tenant Service (STS)**, or **Residential Multi-Tenant Service (RMTS)** providers continue to offer services to residents of apartment and office buildings.

Private Pay Telephone providers continue to serve their specific market with revised rules of operation adopted by both state and federal regulators. As aggregators of traffic on behalf of **Operator Service Providers (OSPs)**, the payphone providers will be affected by both the consumer safeguards and the competitive safeguards adopted by regulators.

As barriers to competitive entry are removed, numerous competitive entities, including **cable TV providers**, **wireless service providers**, **electric utility companies**, and others, may soon provide local exchange services to consumers. This report provides information on these various competitive entities and describes the manner in which they are expected to compete with incumbent carriers.

CHAPTER 3

THE NATURE OF COMPETITION

As this report focuses on the scope of competition in telecommunications markets in Texas, it is useful to first establish an overall perspective on the nature of competition. This chapter begins with a discussion of competition from an economic viewpoint. A historical perspective on the emergence of competition in telecommunications markets is then presented. The final portion of this chapter focuses on the introduction of competition into the local exchange telecommunications market.

Characterizing Competition

When hearing the term “competition,” most people probably have in mind something similar to one definition in *Webster’s Ninth New Collegiate Dictionary*: “a contest between rivals.” In the context of a market economy, they also probably believe that such a contest among businesses generally produces benefits to consumers in product prices, quality, and perhaps variety. There is considerable validity to this notion, but socially desirable market competition requires that a number of conditions be met. For society to receive the most benefits from competition, a significant number of non-colluding firms must offer consumers a high degree of choice among easily substitutable products. There should also be minimal or no externalities (spillover effects), which are costs or benefits of production or consumption that affect persons or firms other than the buyer and seller.

Unlike in an athletic contest, where one competitor’s winning is an assumed outcome and the winner is lauded, the society as a whole normally wants no competitor to achieve a decisive “victory” in the market, for then competition would vanish, perhaps along with its positive influences, until the victor were to perceive another serious competitive threat.¹

Decades ago, Clair Wilcox described the practical notion of “effective” or “workable” competition as follows:

...it offers buyers real alternatives sufficient to enable them, by shifting their purchases from one seller to another, substantially to influence quality, service, and price. Competition, to be effective, need not involve the standardization of commodities; it does, however, require the ready substitution of one product for another; it may manifest itself in differences in quality and service as well as in price. Effective competition depends, also, upon the general availability of essential information; buyers cannot influence the behavior of sellers unless

¹ See William G. Shepherd, *The Economics of Industrial Organization*, second edition (Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1985), pp. 11-12, for more on this comparison.

alternatives are known. It requires the presence in the market [of] several sellers, each of them possessing the capacity to survive and grow, and the preservation of conditions which keep alive the threat of potential competition from others. It cannot be expected to [prevail] in fields where sellers are so few in number, capital requirements so large, and the pressure of fixed charges so strong, that price warfare, or the threat of it, will lead almost inevitably to collusive understandings among the members of the trade. Effective competition requires substantial independence of action; each seller must be free to adopt his own policy governing production and price; each must be able and willing...to modify [this policy] in the light of changing conditions of demand and supply. The test of the effectiveness and workability in competition among sellers is thus to be found in the availability to buyers of genuine alternatives in policy among their sources of supply. ...In brief, competition may be said to be effective or workable whenever it operates over time to afford buyers substantial protection against exploitation by sellers.²

Wilcox's description captures the essence of meaningful competition. As his use of caveats and qualitative terms suggests, however, determining whether a particular market is *effectively competitive* will amount to a judgment call.

Where it is feasible, effective competition offers significant benefits to consumers in product availability (and often variety), prices, and quality. Today's telecommunications industry is in transition from a predominant monopoly model to an environment in which competition is emerging in a growing number of services. Thus regulators and other policy makers must remain cognizant of the dynamics of the industry in order to increase the likelihood that the benefits of competition are realized. Incumbent service providers must remain regulated to some extent during the transition to a competitive environment. If regulation is too minimal, the incumbent carrier will be able to prevent competitors from ever entering a market. On the other hand, if regulation is too onerous, the incumbent will be placed at a disadvantage in the competitive market. In either case, consumers may be harmed.

Appendix B presents an expanded, more theoretical discussion of economic competition.

² Clair Wilcox, *Competition and Monopoly in American Industry* (TNEC Monograph 21, 1941); excerpted from Joel Dean, *Managerial Economics* (Prentice-Hall, New York, 1951), pp. 55-56, and reprinted in Vivian Witkind Davis et al., *Addendum to the Staff Report of Investigation: An Analysis of Selected Aspects of Ohio Bell Telephone's Application for Alternative Regulation: Price Caps, Service Classifications and Infrastructure Commitments* (National Regulatory Research Institute, Columbus, Ohio, February 1994), pp. 151-152.

The Evolution of Competition in Telecommunications Markets

HISTORY

The evolution of competition in the telecommunications industry can be traced to the advances in electronic technology and computing equipment following World War II. The need for customer interconnection to the traditional monopoly telephone network initially occurred in two areas: transmission systems and terminal equipment (later known as customer premises equipment, or CPE). In a series of decisions beginning in the late 1950s, the Federal Communications Commission began the significant makeover of the system that had been advertised by the Bell System of the early part of the century as "One Policy... One System... Universal Service."

In the *Hush-a-Phone*³ and *Carterfone*⁴ decisions, the FCC began to allow the connection of customer provided equipment to the previously sacrosanct telephone network. Additional decisions led to the FCC's decision in 1983 to totally deregulate the provision of CPE by telephone companies. A key to the plan, however, was that customers were allowed to connect purchased telephone sets to the network via standardized interface plugs and jacks. Complex CPE systems such as PBXs and key systems used more complex connections, but those were standardized as well. In many respects, this standardized interconnection arrangement was the precursor to today's design to allow the interconnection of entire competitive networks.

On a similar but separate track, the FCC made a series of decisions that opened the long-distance transmission market to competitive entry. The *Specialized Common Carrier*⁵ decision of 1971 generalized earlier findings that allowed the provision of competitive private line service by Microwave Communications, Inc. (MCI) on a common carriage basis between Chicago and St. Louis. The FCC found that competition, at least in private line markets, was in the public interest, and that it could provide specific benefits to the public, such as new services and lower costs.

Two watershed events occurred simultaneously on January 1, 1984, that had an unprecedented impact on competition in telecommunications. The first event was the implementation of the divestiture of the Bell Operating Companies from AT&T. The

³ *Hush-a-Phone Corp. v. United States*, 238 F.2d 266 (D.C. Cir. 1956); *Hush-a-Phone Corp v. AT&T*, 22 FCC 112 (1957).

⁴ *Carterfone*, 13 FCC 2d 420, *recon. denied*, 14 FCC 2d 571 (1968).

⁵ *Specialized Common Carrier Services*, 29 FCC 2d 870, *recon denied*, 31 FCC 2d 1106 (1971).

divestiture was the result of the Modification of Final Judgment (MFJ)⁶ resolving an antitrust action by the United States Department of Justice against AT&T and Western Electric Company. The MFJ ended the existence of the 100-year-old Bell System. Designed to coincide with the date of divestiture, the second major event involved the implementation of the FCC's 1983 Order⁷ that established a system of access charges that would be paid by long-distance (interexchange) carriers to local exchange carriers for the origination and termination of traffic over local networks. This action was taken to address concerns over the interconnection of competitive long-distance carriers like MCI to the local exchange telephone system.

The combination of major events that occurred in 1983 and 1984 -- the deregulation of customer premises equipment, the breakup of the Bell System, and the implementation of access charges -- signaled the start of a land rush for competitors in the new era of telecommunications. Many customers quickly experienced benefits of this competition, primarily in the wide choice of vendors, options, and prices for CPE and long-distance service. It was also a time of massive confusion for many customers who were accustomed to the "one policy, one service" concept. The FCC and state regulatory commissions found themselves in new roles; they were less involved in traditional rate cases and more focused on such public policy issues as consumer safeguards and complaints of cross-subsidization and other anti-competitive behavior. While consumers enjoy the freedom to choose their equipment or their serving carrier, many are disappointed and confused by unreliable products and services offered by fledgling or unscrupulous competitors.

COMPETITIVE NETWORK SERVICES EMERGE

As the availability of transmission technology increased and price decreased -- even as early as the 1960s -- many businesses installed circuits and transmission systems for their own internal networks. Initially using microwave and then upgrading to optical fiber facilities, some of these businesses discovered that they had excess bandwidth and capacity in their networks that could be marketed to others for carrying telecommunications traffic. As an example, today's Sprint Communications Corporation began its operations through the availability of excess capacity on the communications circuits of the Southern Pacific Railroad Company (thus spawning the name Sprint.) Today, a strikingly similar situation can be seen in the existence of extensive internal communications networks owned by electric utilities that are expected to be utilized in the near future for the provision of telecommunications services on a common carrier basis.

⁶ Modification of Final Judgment, *United States v. American Telephone & Telegraph Co.*, 552 F. Supp. 131,226 (D.D.C. 1982), *aff'd sub nom, Maryland v. United States*, 460 U.S. 1001, 103 S. Ct. 1240 (1983).

⁷ Third Report and Order, *MTS and WATS Market Structure*, CC Docket No. 78-72, Phase I, 93 FCC 2d 241 (1983).

One major category of competitor that is using technology to respond to consumer demand is the Competitive Access Provider, or CAP. These common carriers typically utilize an optical fiber network in major metropolitan areas to provide business customers with advanced transmission services as well as direct access to interexchange carrier serving offices.

PAY TELEPHONE COMPETITION

In a series of actions and decisions spanning 25 years, the FCC gradually permitted -- and in some cases fostered -- a migration from sole-source provision of customer premises equipment (CPE) toward the competitive provision of that equipment. In contrast to the leased black rotary-dial desk telephones of the 1950s, the introduction of competition launched hundreds of products that offer today's consumer a wide choice of styles, features, colors, and prices.

The FCC's initial decisions addressing the deregulation of CPE, however, did not include coin-operated telephones, in part because many instruments depended on special equipment and circuitry to link the payphone with the switching office. However, technological innovations led to the development of the "smart" payphone that included sophisticated computer intelligence to perform most of the control and supervision functions previously performed by the LEC network. In 1984, the FCC recognized the right of non-LEC providers of payphone service to interconnect their payphones to the public switched network.⁸

The independent or competitive payphone owners that have entered the market in recent years have until recently been referred to as private payphone owners, or "PPOs."⁹ In order to provide service, the PPO is required to obtain a private payphone service line from the ILEC. The pricing of this connection, along with the terms and conditions that have been applied to non-ILEC payphone lines, and the lack of equivalent requirements on ILEC payphones, all have been controversial issues since their inception.

One of the reasons for the proliferation of PPOs in Texas and throughout the nation is the strong financial incentive associated with the ability to operate the payphone as a part of a packaged service offering. Generally, revenues from payphones for operator services and long distance services are far greater than coin box revenues for local calls. As a result, PPOs would establish a contractual agreement with an operator service provider or interexchange carrier to carry the calls placed from that payphone. During the rapid expansion of the PPO industry in the late 1980s and early 1990s, there were few, if

⁸ *Memorandum Opinion and Order*, Registration of Coin Operated Telephones, 49 Fed. Reg. 27763 (1984) ("Coin Registration Order").

⁹ During the early years of their existence, private payphone owners endured many acronyms for their trade, such as "COCOT" (Customer-Owned Coin-Operated Telephone) vendors. The most recent change occurred with the 1996 FCC Order described later in this section in which all payphone providers, both ILEC and competitive, are known as "PSPs" (payphone service providers).

any, regulatory controls on the rates and terms for operator services and long distance services to which the PPO payphones were connected. This was also the period in which customers were still attempting to become accustomed to the post-divestiture world of telecommunications, and the questionable practices and rates of some payphones and their operator service providers became the target of consumer frustration and complaints.

To address these concerns, and in response to the 1989 revision to PURA that added § 18A regarding competitive issues, the PUC promulgated rules in 1989 related to private pay telephone service (Subst. R. §23.54), and relating to operator services (Subst. R. § 23.55). These rules helped protect consumers by requiring, among other things, the provision of relevant information, including rate information when requested, and the unblocking of access-code calls (which begin with "10XXX", "1-950", or "1-800") from private pay telephones and other telephones intended for public use. In a similar action regarding operator services, the U. S. Congress enacted the Telephone Operator Consumer Services Improvement Act ("TOCSIA")¹⁰ in 1990, which mandated consumer safeguards on a nationwide basis.

PURA95 §3.2625 made significant changes to the regulation of payphones. In 1996, the PUC adopted changes to Subst. R. §23.54 that codified the revisions in PURA95. The changes incorporated the statute's expansive definition of "provider of pay telephone service." The changes also require providers of pay telephone service (PTS) who do not possess a CCN to register with the PUC, and broaden the application of information posting requirements on payphones. Additionally, the rule changes establish limits on the charges for local pay telephone calls which are either coin-paid or involve operator assistance or the use of a credit or calling cards. PTS providers are allowed to impose set-use fees for "1-800" type calls (other than calls accessing a long-distance company), are prohibited from charging for directory assistance service. Moreover, the providers, with the exception of the ILECs, are limited on the amounts that may be charged for long distance calls. Additional discussion of the requirements of PURA95 on payphones and operator services are included in Chapter 8 of this report.

In a recent action, the FCC amended its rules to remove remaining barriers to competitive entry into the payphone market. In its Report and Order in CC Docket No. 96-128,¹¹ the FCC adopted new rules that:

- require ILECs to deregulate and de-tariff all their payphones and separate their payphone assets into non-regulated accounts to guard against cross-subsidization;
- allow, after a one-year transition, local payphone coin rates to be deregulated and market-based;

¹⁰ Pub. L. No. 101-435, 104 Stat. 986 (1990) (codified at 47 U.S.C. § 226).

¹¹ Report and Order, CC Docket No. 96-128, *In the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996*, Adopted September 20, 1996.

- establish a plan to ensure fair compensation on all calls made using payphones, and discontinue carrier access charge elements as well as other subsidies for payphones;
- permit the Bell Operating Companies (BOCs) as well as other payphone service providers to negotiate with payphone location providers on the interLATA carrier presubscribed to their payphone; and
- adopt guidelines for use by the states in establishing payphone standards that will protect the public interest.

Much of the debate that currently surrounds the regulation of private payphone owners (PPOs) and ILECs providing payphones (now known in the aggregate as payphone service providers, or PSPs) is focused on consumer choice. In a given city, for example, dozens of non-ILEC PSPs may operate payphones in competition with the ILEC payphones. However, at one specific location, either the ILEC or the non-ILEC PSP generally has a "locational monopoly"; i.e., in order to have competitive choice, the consumer must physically move from that location to another location where a payphone is operated by the desired provider. Both the FCC and the PUC recognize that in certain locations, the property owner or "location provider" can contract exclusively with one payphone provider to establish that provider as the monopoly provider of payphone service at that location. Under such circumstances, a consumer standing outside of a convenience store in a freezing rain has little competitive choice. Accordingly, regulatory policy has focused on providing the consumer at that location with, at a minimum, sufficient information and flexibility to make an informed choice of long distance and operator service providers.

The Texas PUC petitioned the FCC for reconsideration of its decision, on the grounds that the FCC's ruling amounted to intrastate local ratemaking, and also with the concern that market-based local coin rates for payphones are not in the public interest at this time.¹² On November 8, 1996, the FCC denied the PUC's petition.¹³

¹² Petition for Reconsideration, CC Docket No. 96-128, September 17, 1996.

¹³ Order on Reconsideration, CC Docket No. 96-128, *In the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996*; Adopted November 8, 1996.

WIRELESS COMPETITION

Consumers use a number of mobile services for their communications needs, many of which services require interconnection to the public switched telecommunications network.

The original Public Utility Regulatory Act, adopted by the Texas Legislature in 1975, required the PUC to regulate wireless service providers such as paging companies and mobile radio providers who were not wire-line telephone companies. Based on the recognition that paging and mobile radio markets were sufficiently competitive, however, the 67th Texas Legislature amended PURA in 1981 to remove paging and other "radio-telephone" carriers from the PUC's regulatory jurisdiction.

Mobile telecommunications services were introduced in the 1940s, and grew in popularity and technological capabilities in the following four decades. In the 1980s, many local exchange carriers in Texas offered Improved Mobile Telephone Service (IMTS) under tariffs approved by the PUC. Partly in response to growing congestion within the existing 2-way mobile service offerings, cellular services began to be offered in 1983. As envisioned by its designers, cellular service was supposed to alleviate congestion by using low-power transceivers in small geographic areas called cells. Through the use of computer technology, these cells could be linked together to provide the desired mobility while at the same time permitting the reuse of frequencies to increase the number of mobile customers that could be served.¹⁴

Cellular and other wireless services are currently regulated by the PUC only if the services are provided by a wireline telecommunications utility. Otherwise, rate plans and charges are not regulated by the PUC. The FCC regulates certain aspects of cellular and wireless services, including frequency spectrum allocation and transmitter characteristics. Even though cellular, PCS, cable TV systems, and other providers are not currently regulated by the PUC, they are addressed to a limited extent in this report in order to describe their potential impact on telecommunications competition in Texas.

¹⁴ *BOC Notes on the LEC Networks*, SR-TSV-002275, Issue 2, April 1994, Section 16.

The New Frontier: **Competition in Local Exchange Markets**

Until the mid-1990s, the evolution of competition in telecommunications was limited primarily to the long-distance market, the provision of CPE, and a few other "fringe" market categories within the industry, such as pay telephones and billing services. However, the anchor tenant of telecommunications services -- switched local exchange service -- was considered off limits to competitors. Almost all states had certification requirements for the provision of local exchange service that made it difficult, if not impossible, for competitors to enter the market. Competitive entry into local exchange markets has been opposed by ILECs, in large measure because a significant percentage of their revenue stream is at risk from competitors.

A combination of factors, including the perceived benefits of competition in long distance and other markets and the development of new technologies such as cellular telecommunications and personal communications services (PCS), have increased pressure for public policy in telecommunications to turn toward the competitive market rather than the traditional regulated monopoly paradigm for local exchange services. Within the past several years, state and federal lawmakers and regulators have been working at an incredible pace to open the local exchange market to competition.

There has been much speculation that this work would lead to the "deregulation" of telecommunications markets and/or carriers.¹⁵ Regulation is certainly changing, with its primary emphasis switching from economic regulation of monopolies to a broader form of regulation to ensure that bottleneck control is not used to the detriment of the more competitive segments of the network. This change in paradigm, however, does not mean that regulation is being wholly eliminated. Alfred E. Kahn, the economist widely recognized as the "grandfather" of deregulation, has articulated the following view:

The abolition of direct economic regulation is by no means synonymous with laissez faire. On the contrary, it may call for government interventions no less vigorous than direct regulation itself, but fundamentally different in character and intent. The progressive realization of this fact in recent years makes for a bifurcated prognosis for the 1990s: the historic trend of direct economic deregulation is unlikely to be reversed, but government will play an increasingly active role in attempting to preserve competition and remedy its imperfections. And that is what it should do.¹⁶

Columbia University Professor Eli M. Noam has reached a similar conclusion:

¹⁵ Portions of this section have been excerpted from the *Summary Report of the Local Competition Work Group* of the Staff Subcommittee on Communications of the National Association of Regulatory Utility Commissioners (1996)

¹⁶ Alfred E. Kahn, "Deregulation: Looking Backward and Looking Forward," *Yale Journal on Regulation*, Vol. 7, No. 2, Summer 1990, pp 329-330.

Some traditional subjects of regulation, such as price and entry controls will become unnecessary. But issues involving free flow of information, interconnectivity, universality of service, and international asymmetry, will not vanish with competition. Thus, rules and regulations will change, but not disappear entirely. Liberalization does not mean libertarianism.¹⁷

Both Kahn's and Noam's observations are particularly insightful today, as federal and state regulators wrestle with the new goals of regulation in the competitive telecommunications world. As interconnection agreements are negotiated and competitive local service providers begin to enter the market, no one is certain of the degree to which effective competition may develop. Only through removal of regulatory and legal barriers and continued oversight as needed to address imperfections and market failures, can the extent of viable competition be experienced and measured.

COMPETITIVE NETWORK MODELS

The National Regulatory Research Institute has developed a series of models to describe the telecommunications network in transition to competition:

In developing policies to implement rights-of-way access, one of the factors to consider is the implicit network model that underlies policy, because policy can be conditioned by the network model that is adopted. The traditional model may be described as a "parallel networks model." In that model, a single telephone network and a single cable television network co-existed, but there was no competition or interconnection between them. Although the Pole Attachment Act of 1978 allowed cable television providers to use poles owned by LECs or others to carry their wires, a combination of regulatory and technological firewalls separated them. However, forces of technology created market pressures that led to revisions of the law, and rendered the parallel networks view largely obsolete, at least for public policy purposes.

The emerging view is that local telecommunications should resemble a network-of-networks. In that view there will be multiple physical networks connecting customers to carriers and carriers to each other. There are two variants of the network-of-networks view. The first is the "linchpin model" that envisions a future with one or two core or focal networks and a number of fringe networks, which generally would be connected to the core networks, but not necessarily to each other.

The linchpin model is closest to the likely short- or intermediate-term evolution of local competition. The linchpin network will have interconnection obligations, including making its rights-of-way facilities available, that do not necessarily apply to others. The principal networks will provide access and interconnection to the fringe networks on a "carriers' carrier" basis. The fringe

¹⁷ Eli M. Noam, "Principles for the Communications Act of 2034: The Superstructure of Infrastructure," *Federal Communications Law Journal*, Vol. 47, No. 2, p. 317.

networks will be customers of the linchpin networks, and asymmetric regulation of the linchpin network will ensure that incumbents do not use their position as supplier to their competitors to gain undue advantage.

Further evolution of the network-of-networks could lead to the "intermeshed networks" model which is based on the concept of there being no single core network. The linchpin network's core network will be replaced by multiple interconnected networks, which, when combined, will provide an interoperable platform over which a wide range of services will be available. If the intermeshed networks model becomes a realistic view, the special obligations imposed on core networks will no longer be needed. Instead, reciprocal interconnection and common use of facilities will be the norm. All network owners will be under symmetric obligations to make their facilities available to other carriers, and carriers will treat each other as equals rather than as customers.

At present, we are moving away from the parallel networks model into the linchpin network-of-networks model. Although it will likely be some time before the transition [to] an intermeshed network-of-networks model, regulators should consider its implications, because the type of regulatory oversight applied should transition with the evolution of the networks. One transition that will accompany the evolution of networks is the transition from treating non-LEC carriers as the LEC's customers to treating them as equal co-carriers in that customer access facilities may be shared by several service providers.¹⁸

Competition in Other Jurisdictions

State legislatures throughout the country have enacted legislation to foster competition in their jurisdictions. Although the legislatures share a common goal in fostering competition, their approaches have differed. In 1995 alone, statutory barriers to competition in the local exchange market fell in thirteen states: Colorado, Florida, Georgia, Hawaii, Iowa, Minnesota, North Carolina, New Hampshire, Tennessee, Texas, Utah, Virginia and Wyoming.¹⁹ In states where state statutory barriers did not exist, state regulators took significant steps in 1995 towards making local exchange competition technically and economically feasible. According to an early 1996 survey by Morgan Stanley Research, states such as California, Washington, New York, Illinois, and

¹⁸ Edwin A. Rosenberg and Stell Rubia, *Rights-of-Way and Other Customer-Access Facilities: Issues, Policies, and Options for Regulators*, The National Regulatory Research Institute, Columbus, Ohio, September 1996, p. v. These models were first offered by Phylliss Bernt *et al.* in *Regulatory Implications of Alternative Network Models for the Provision of Telecommunications Services*, NRRI, Columbus, Ohio, 1994.

¹⁹ Teleport Communications Group, *States at the Forefront in Making Local Telecommunications Competition Legal* (New York: August 1995), p. 1.

Maryland were in the advanced phases of directing the regulatory process towards local competition.²⁰

With the passage of FTA96 in February 1996, however, state regulators and the FCC were shifted into overdrive with the aggressive schedule of statutory deadlines for the introduction of competition. Virtually all state regulatory commissions are grappling with the essential issues regarding local exchange competition, including: compensation for the mutual exchange of local traffic; service resale, telephone number portability; universal service; unbundling and pricing essential network elements; equal access of ILECs and competitive LECs (CLECs) to buildings; equal access for ILECs and CLECs to public rights of way and to utility controlled conduits; and cost parity between services sold by the monopoly. The implementation of FTA96 is explored further in Chapters 4 and 5 of this report.

As can be seen in Table 3.1, most states are involved in certification filings, interconnection proceedings, or arbitration cases, with Texas being one of the most active states in terms of competitive activity. Public utility commissions are faced with a radical paradigm shift from a regulatory model of stable process to one in which they must apply new methods or regulation.²¹ As ILECs and CLECs work to negotiate agreements, the role of state commissions is changing from regulator to arbitrator. At stake will be the ability of commissions to protect the interests of all parties.²²

As this report is prepared, over a dozen states, including Texas, are completing the process of negotiation, arbitration, and approval of interconnection agreements between ILECs and competitors that will facilitate local exchange competition, with CLECs queued up to begin offering services on a widespread basis in the very near future.

²⁰ Morgan Stanley U.S. Investment Research, *National Survey of Local Competition Issues: A State by State View*, (New York, June 12, 1996), p. 8.

²¹ The National Regulatory Research Institute, *Transforming Public Utility Commissions in the New Regulatory Environment*, July 1996, pp. 11-12.

²² *Ibid.*, p. 11.

Table 3.1: Status of Local Competition in the States²³

State	CLEC Certification	Interconnection Details
Alabama (AL)	AT&T, ACSI, ICG (pending), Intermedia, KMC (pending), LCI (pending), Paramount and Preferred Carrier Services (pending). "ALTs" may begin to provide switched services upon approval of their interconnection agreements from the PSC.	All LECs are required to interconnect at nondiscriminatory rates. ILECs must allow new entrants' white page listings in their directories. Rates to be set in workshop on interconnection or in private negotiations with the LECs. Bell South has reached interconnection agreements with ACSI, Hart/Paramount (approved), MCImetro (approved), Intermedia, Time Warner, TCG, Telco of Central Florida, and WinStar. Bell South requested PSC mediation of its regional interconnection negotiations with AT&T. Negotiations are not at an impasse.
Alaska (AK)	AT&T/Alascom (pending), GCI (pending).	No action on special/switched access interconnection. Arbitration: GCI/Anchorage Telephone Utility (decision due 12/15/96).
Arizona (AZ)	ACSI (pending), AT&T (pending), Brooks Fiber, Cox Arizona Telecom (pending), ELI (pending), GST (pending), MCImetro (pending), MFS, TCH (pending) and WinStar (pending).	Interconnection must be provided on a nondiscriminatory basis (at any technically feasible point) within six months of a bona fide request (Docket No. R-0000-94-424). Carriers are to reach negotiated agreements, which must be tariffed and approved by the ACC-disputes can be brought to the ACC for resolution. rules have been adopted for ACC arbitration of disputes. No outside parties will be permitted to intervene. AT&T and GTE have agreed to use a modified version of their arbitrated California agreement. Arbitrations: ACSI and U S West (decision due 11/27/96); AT&T and U S West (decision due 11/27/96); Brooks Fiber and U S West (decision due 12/27/96); MFS and U S West (decision due 11/8/96); Sprint and U S West (decision due 12/15/96) and TCG and U S West (decision due 11/8/96).
Arkansas (AR)	ACSI (pending), Alltel (pending), AT&T (pending), Brooks Fiber (pending), Dial & Save (pending), Excel (pending), GE Capital (pending) Razorback Comm. (pending), Sprint (pending) USI (pending) and U S Long Distance (pending).	No action on special/switched access interconnection. ACSI and Southwestern Bell Telephone Co. (SWB) filed a partial interconnection agreement for PSC approval on 8/13/96

²³ Data compiled from an October 22, 1996, survey by Kelley, Drye & Warren (a Washington-based telecommunications law firm).

State	CLEC Certification	Interconnection Details
		<p>(Docket No. 96-258 U).</p> <p>USLD has reached an interconnection agreement with SWB - filed for PSC approval on 9/9/96 (Docket No. 96-291-U).</p> <p>SWB/Brooks Fiber filed an interconnection for PSC approval on 8/30/96 (Docket No. 96-278 -U).</p> <p>SWB/Fast Communications filed an interconnection agreement for PSC approval on 9/26/96 (Docket 96-325-U).</p> <p>Arbitration: ACSI/SWB (decision due 11/27/96) (Docket No. 96-252-U).</p>
California (CA)	<p>32 competitors have been certified for facilities-based service, and 59 for resale. At least 10 more applications are pending. Among the competitors are: AT&T, Brooks Fiber, Cable & Wireless, Continental, ELI, Frontier, GST Telecom, ICG, LCI, LDDS/WorldCom, Linkatel Pacific, MCImetro, MFS, TCG, TCI Telephony, Time Warner and WinStar. PacBell Communications has asked to compete in the local carrier market.</p>	<p>PUC decision in Docket 95-12-056 establishes criteria and cost guidelines for interconnection. Carriers are to reach negotiated agreements and can bring disputes to the PUC for resolution.</p> <p>PacBell and MFS signed a co-carrier agreement covering interconnection, unbundling, reciprocal compensation and number portability. PUC approved the agreement Jan. 1996. MFS also has reached an agreement GTE.</p> <p>Pac Bell and TCG signed an agreement on switched interconnection. (approved). TCG also has reached an interim interconnection agreement with GTE that provides for bill and keep - several issues, including interconnection points and unbundling, remain unresolved.</p> <p>Pac Bell and GTE have reached an interconnection agreement that will allow each to provide competitive local service in the other's service area.</p> <p>Pac Bell has also reached interconnection agreements with Brooks Fiber, Cox, ELI, ICG, MCImetro, Pac West Telecom and WinStar.</p> <p>Arbitration Activities: AT&T/PacTel (decision due 12/10/96); AT&T/GTE (decision due 12/10/96); MCI/PacTel (decision due 12/30/96) and Western Wireless/GTE (decision due 12/24/96).</p> <p>PUC will not allow third party intervention in</p>

State	CLEC Certification	Interconnection Details
		arbitration cases.
Colorado (CO)	<p>ACSI (pending), AT&T (pending), Dial and Save (pending), ICG (pending) LCI (pending), MCImetro (pending), MFS (pending), PoppTel (pending), Sprint (pending), TCG (pending), Western PCS (pending) and WinStar (pending). PUC has promulgated permanent rules in order to evaluate applications for certification.</p>	<p>Interconnection via physical collocation is required (Docket No. 95R-556T). Virtual collocation is acceptable when physical collocation is not practical for technical reasons or space limitations. Carriers are to reach negotiated agreements within 90 days of a bona fide request. Disputes may be brought to the PUC for resolution.</p> <p>US West must tariff its terms of interconnection. Agreements cannot be inconsistent with tariffed rates, terms and conditions.</p> <p>PUC rules adopt TSLRIC price floor.</p> <p>Arbitration: AT&T and U S West (decision due 11/8/96); ICG and U S West (decision due 11/8/96); MCI and U S West (decision due 11/8/96); Sprint and U S West (decision due 1/6/97); TCG and U S West (decision due 11/8/96) and Western Wireless and U S West (decision due 12/26/96).</p>
Connecticut (CT)	<p>AT&T, Brooks Fiber, Cable & Wireless, Cablevision Lightpath (pending), Dial & Save, Excel , Hatten (pending), LCI, WorldCom, MCImetro, MFS, Sprint, TCG, TCI Telephony (pending), WinStar.</p> <p>Certification requirements set forth n Docket No. 94-07-03</p>	<p>Carriers are to reach negotiated agreements which must be filed with the DPUC. SNET must make interconnection available on a two-way trunk basis, unless carriers agree otherwise (Docket No. 94-10-02). Collocation must be provided consistent with the terms in Sec. 14 of SNET's State Access Tariff.</p> <p>Arbitrations: AT&T/NYNEX (decision due 12/1/96); AT&T/SNET (decision due 12/1/96); MCI/SNET (no decision scheduled); and TCG/SNET (no decision scheduled).</p>
Delaware (DE)	<p>AT&T, Eastern Telelogic, MCImetro, MFS, and Sprint (pending).</p> <p>Conditional CPCNs have been granted to Eastern Telelogic, MCImetro, and MFS - authority has been conditioned upon compliance with interim rules set forth in Regulation Docket No. 45, or upon successful negotiations with Bell Atlantic.</p>	<p>Issue being reviewed in Regulation Docket 45. MFS has reached an interconnection agreement with Bell Atlantic - but has filed for arbitration over loop pricing (decision due 11/8/96).</p> <p>Arbitrations: Eastern Telelogic/Bell Atlantic (decision 12/3/96) and MFS/Bell Atlantic (decision due 11/8/96).</p>
Florida (FL)	<p>ACSI (pending), Arrow, AT&T, Avant-Garde Telecom, BellSouth Telecom, Cable and Wireless, City of Lakeland, Continental Fiber, Continental Florida Telecommunications, Data and Electronic Service, Digital Media Partners, Fla., Public Telecom Association, Florida</p>	<p>Statutory interconnection required. Carriers are to reach negotiated agreements. If carriers come to an impasse after 60 days, they can petition the PSC for arbitration. PSC then has 120 days to make a determination (Docket No. 950985).</p>

State	CLEC Certification	Interconnection Details
	Telecommunications Services, global Tel*Link, Intermedia, Interprise/Continental, Intetech, KMC, LCI, LDDS/WorldCom, MCI, MCImetro, MFS, National Tel, Payphone Consultants, PCS, Sprint Metro, Strategic Technologies, T-Netix, TCG, Telco Communications, Telenet of South Florida, Tel. Co. of Central Florida, Time Warner, U S West/Interprise America, and WinStar.	<p>MFS has reached interconnection agreements with GTE, BellSouth, and Sprint.</p> <p>BellSouth has reached interconnection agreements with ACSI, FCTA, Hart, Intermedia, MCImetro, Time Warner, TCH (approved), Telco of Central Florida, and WinStar.</p> <p>Intermedia also has reached interconnection agreements with Sprint and GTE.</p> <p>Arbitration Activity: AT&T/BellSouth (decision due 12/4/96); AT&T/GTE (decision due 12/12/96); ACSI/GTE (no decision scheduled); MFS/BellSouth (decision due 11/8/96); MCI/BellSouth (decision due 12/17/96); MCI/GTE (decision due 12/13/96); MFS/Sprint (decision due 11/8/96); and WinStar/GTE (decision due 12/13/96).</p>
Georgia (GA)	ACSI, Access Network Services (pending), American Telemanagement, AT&T, Business Telecom Inc., Cable & Wireless (pending), Deltacom (pending), Georgia Comm. South (conditional), InterLink, Intermedia, KMC (pending), LCI, LDDS/WorldCom (pending), Marietta FiberNet (City of Marietta) (conditional), MCImetro, MediaOne (U S West), MFS MultiTechnology Services, Sprint, TriCom, US One (pending), and WinStar (pending).	<p>PSC rules mirror FCC's including TELRIC pricing. BellSouth has been ordered to submit TELRIC cost studies. BellSouth's initial local interconnection tariff has been withdrawn. BellSouth has reached interconnection agreements with ACSI, Hart, Intermedia (approved), MCImetro (partial), Time Warner, MediaOne (U S West), TCG Telco of Central Florida, and WinStar.</p> <p>Arbitration: MFS/BellSouth (decision due 11/8/96); AT&T/Bell South (decision due 12/4/96); MCI/BellSouth (decision due 12/26/96).</p>
Hawaii (HI)	AT&T, GST Telecom, GST Telecom, TelHawaii, Sprint, Time Warner and Western Com.	<p>Statutory interconnection requirement. H.R.S. 269. Under current rules, carriers are to reach negotiated agreements. Docket 7702 (infrastructure docket).</p> <p>PUC adopted rules establishing procedures for negotiations on interconnection and setting guidelines for the PUC to arbitrate agreements.</p> <p>Rules require physical interconnection except where not feasible. GTE must provide new entrants with directory assistance and listings.</p> <p>Arbitration: AT&T/GTE (decision due 12/12/96); GST/Sprint (no decision scheduled) and Western Wireless/GTE (no decision scheduled).</p>
Idaho (ID)	Dial & Save (pending), Excel (pending), GST (pending), Health Liability Management Corp. (pending), MCI (pending) and PSC (pending).	Arbitration: Phoenix FiberLink/U S West (decision due 12/24/96) and Western Wireless/U S West (decision due 12/26/96).

State	CLEC Certification	Interconnection Details
	AT&T has filed a letter of intent to enter the local service market (Docket No 96-1). Its CPCN may already give it the necessary authority to do so (comments received - decision pending).	
Illinois (IL)	Ameritech Advanced Data Services, Ameritech Communications (pending), A.R.C. Networks, AT&T, Cable & Wireless, Consolidated Communications, Continental (pending), Datacom International (pending), Dial & Save (pending), DSC, Easton Telcom (pending), Focal Comm. (pending), Frontier, Global Com (pending), Hi-Rim (pending), Intermedia (pending), LCI, LDDS/WorldCom, LDM Systems (pending), MCI, MCImetro, McLeod, MFS, MFS Intelenet (pending), Microwave Services, MidWest FiberNet, Milliwave Limited (pending), One Stop Communications, PCS Primeco, PCS, QST, SamComm (pending), SBMS/Cellular One, Sprint, TC Systems, TCG, TCG St. Louis (pending), U.S. Ameritel (pending), U.S. ONE (pending), U.S. Online, USN Comm., and WinStar.	<p>Rules mandate interconnection by either physical or virtual collocation (Admin. code Part 790). Carriers are to reach negotiated agreements on the terms of interconnection (Docket No. 94-0049). Disputes can be brought to the ICC which will open an formal docket.</p> <p>Interconnection issues also are being addressed in the Ameritech customers First compliance docket (Docket No. 93-0296). MFS has reached an interconnection agreement with Sprint.</p> <p>Ameritech also has reached a regional interconnection agreement with MFS. The agreement calls for interconnection at any feasible point, access to 911, operator services and a white pages listing.</p> <p>Ameritech also has reached interconnection agreements with WinStar, USN, and CBG. ICC approved an interconnection agreement between Ameritech and Southwestern Bell Mobile Systems (Cellular One).</p> <p>Arbitration: AT&T/GTE (decision due 12/3/96); AT&T/Ameritech (decision due 12/22/96); MCI/Ameritech (decision due 12/26/96); TCG/Ameritech (decision due 11/8/96); and MFS/Sprint (decision 11/8/96).</p>
Indiana (IN)	Ameritech Communications (pending), AT&T, Excel (pending), LCI (pending), MFS (pending), MCI (resale tariff approved 5/8/96 for CENTREX-like services on a 2-year trial basis), Sprint (pending), and TCG (pending).	<p>Carriers are to reach negotiated agreements. Ameritech has reached a regional interconnection agreement with MFS. The agreement calls for interconnection at any feasible point, access to 911, operator services and a white page listing.</p> <p>Ameritech also has reached an interconnection agreement with Hancock.</p> <p>Arbitration: AT&T/Ameritech (decision due 11/27/96); AT&T/GTE (decision due 12/12/96); MCI/Ameritech (decision due 12/26/96); MCI/GTE (decision due 11/8/96); and TCG/Ameritech (decision due 11/8/96).</p>
Iowa (IA)	AT&T, Dial & Save (pending), Excel, LCI (pending), McLeod (facilities-based resale), MCImetro (resale), Onetel (resale), Sprint (pending), Total Communications (resale) and Western PCS.	<p>Statutory interconnection requirement. Carriers are to reach negotiated agreements on the terms of interconnection (Docket No. RMU-95-5). Terms must be nondiscriminatory and included in the LECs'</p>

State	CLEC Certification	Interconnection Details
		<p>tariff for unbundled services. Telecommunications Act of 1996 standard for interconnection, including mediation and arbitration procedures, has been incorporated into the rules.</p> <p>Arbitration: AT&T/GTE (decision due 12/11/96). Decision issued on 10/18/96 in consolidated case of AT&T/U S West and MCI/U S West.</p>
Kansas (KS)	<p>AT&T, Brooks (pending), Business Communication Services, Inc. (pending), Dial & Save (pending), Excel (pending), KC FiberNet, Rural Tel. Co., Sprint, US Com. (pending) USLD (pending) and Western Wireless (pending).</p>	<p>Carriers are to reach negotiated agreements and rates are to be tariffed. Disputes can be brought to the KCC for resolution. Pricing issues to be addressed in Phase II of Docket No. 190,492-U. Final decision expected by 12/31/96.</p> <p>USLD has reached an interconnection agreement with SWB.</p> <p>Arbitration: Sprint/SWB (decision due 1/15/97).</p>
Kentucky (KY)	<p>ACSI (pending), Dial & Save (pending), Excel (pending), and Intermedia.</p> <p>Any carrier already qualified to provide some service in Kentucky does not have to file for CLEC certification. They must file negotiated or arbitrated agreements along with a local services tariff. Carriers are also required to place 6% of their intrastate revenue in an escrow account or post an equivalent bond to cover USF obligations.</p>	<p>Decision issued 9/27/96 in Admin. Case No. 355.</p> <p>Carriers must file interconnection agreements with the PSC. The PSC will review on case-by-case basis. BellSouth has reached interconnection agreements with ACSI, Hart, MCImetro (approved), Intermedia, Time Warner, TCG Telco of Central Florida, and WinStar.</p> <p>Arbitration: ACSI/GTE (no decision scheduled); MCI/GTE (decision due 12/30/96); and MCI/BellSouth (decision due 12/26/96).</p>
Louisiana (LA)	<p>ACSI (pending), AT&T (pending), Cox (pending), Digital Direct, GNET (pending), Intermedia, KMC (pending), MFS (pending), Paramount, Preferred Payphones, Inc. (pending), TCI (pending), and WinStar (pending).</p>	<p>ILECs and facilities based LECs must provide interconnection. (Secs. 301 and 901, Docket No. U-20883). Carriers area to reach negotiated agreements within 90 days. Neither physical nor virtual collocation has been mandated.</p> <p>BellSouth has reached interconnection agreements with ACSI, Hart, Ameritech Metrocomm, MCImetro (approved), Intermedia, Time Warner, TCG, Telco of Central Florida, and WinStar.</p> <p>Arbitration: AT&T/BellSouth (no decision scheduled).</p>
Maine (ME)	<p>AT&T, Business Long Distance, Dial & Save (pending), Freedom Ring (pending), MCImetro (pending), and Sprint (pending).</p> <p>All certifications are conditioned on tariffs being filed.</p>	<p>Carriers to reach negotiated agreements. Approximately 21 companies have requested interconnection with NYNEX. NYNEX has reached an interconnection agreement with Freedom Ring Communications.</p>

State	CLEC Certification	Interconnection Details
		Arbitration: AT&T/NYNEX (decision due 1/3/96).
Maryland (MD)	ACSI, AT&T, Cable & Wireless, Intermedia, LCI (pending), MCImetro, MFS, Sprint, TCG, and WinStar (pending).	<p>Efficient and seamless interconnection is required (Case No. 8584). Carriers are to reach negotiated agreements. PSC set interconnection rates of \$0.003/minute at the end office and \$0.005/minute at the tandem switch.</p> <p>MFS has reached an interconnection agreement with Bell Atlantic (approved).</p> <p>Arbitration: AT&T/Bell Atlantic (decision due 12/4/96); MCI/Bell Atlantic (decision due 11/8/96); MFS/Bell Atlantic (decision due 11/8/96); Sprint/Bell Atlantic (decision due 12/31/96); and TCG/Bell Atlantic (decision due 11/8/96).</p>
Massachusetts (MA)	<p>Registered companies include: AT&T, Brooks fiber, MCImetro, MFS, PCS, Residential Comm. Network, TCG, and X-Com.</p> <p>AT&T is seeking a regional interconnection agreement NYNEX.</p>	<p>Carriers to reach negotiated agreements. NYNEX and MFS have reached an interconnection agreement that includes provisions for nondiscriminatory access to 911 and E-911 services, directory and operator assistance, white pages listings.</p> <p>NYNEX also has reached interconnection agreements with Brooks (partial) and WinStar.</p> <p>Arbitration: AT&T/NYNEX (decision due 12/4/96); Brooks/NYNEX (decision due 11/18/96); MCI/NYNEX (decision due 12/17/96); Sprint/NYNEX (no decision scheduled); and TCG/NYNEX (decision due 11/8/96).</p>
Michigan (MI)	Ameritech Communications, Inc. (approved for GTE territory only; conditional approval for Ameritech territory pending FCC 271 authorization), Continental Telecom, AT&T, Brooks Fiber, Climax, Frontier, LCI, LDDS/WorldCom (pending), MCImetro, MFS, TCG, USN, and WinStar.	<p>ILECs must offer CLECs interconnection based on the same terms afforded independent LECs.</p> <p>PSC Order establishes interconnections rates, terms and conditions for local competition, with details to be negotiated by Ameritech and GTE with competitors. Order requires: (1) unbundling components of local network; (2) detailed cost support for unbundled prices; (3) implementing true number portability no later than when Ameritech-Illinois implements such service; and (4) offering basic services at wholesale rates "no more than retail rates less avoided costs."</p> <p>Ameritech has filed a general statement of terms and conditions for interconnection, resale, traffic exchange compensation and number portability with the PSC.</p>

State	CLEC Certification	Interconnection Details
Michigan (MI) continued		Ameritech has signed interconnection agreements with Brooks Fiber (City Signal), ICG USN, MFS (approved in part, rejected in part by PSC), and MCImetro. Arbitration: AT&T/Ameritech (decision due 11/25/96); MCI/Ameritech (decision due 12/26/96); and TCG/Ameritech decision due 11/8/96).
Minnesota (MN)	American Telecom (pending), AT&T, Choicetel, Dial & Save (pending), Excel (pending), Farmers Mutual, Firstel (pending), Infotel, LCI (pending), MCImetro, McLeod, NorLight (denied), One Call (pending), PoppTel and Sprint (pending).	Issue to be addressed in Docket No. P((R-95-53. Arbitration: AT&T/U S West (decision due 12/2/96); AT&T/GTE (decision due 12/12/96); MCI/U S West (decision due 12/2/96); Sprint/GTE (decision due 1/20/97); and Sprint/U S West (decision due 1/15/97).
Mississippi (MS)	ACSI (pending), AT&T (pending), Brooks (pending), DeltaCom (pending), Dial & Save (pending), Excel (pending), Intermedia, MS Fiber (pending), Paramount (pending), and Sprint (pending). PSC adopted certification rules in July 1996.	Issue to be addressed in Docket No. 95-UA-358. BellSouth has reached interconnection agreements with ACSI, Hart, MCImetro, Intermedia, Time Warner, TCG, Telco of Central Florida, and WinStar. Arbitration: Brooks/BellSouth (decision due 12/29/96).
Missouri (MO)	Ameritech (pending), ACSI (pending), AT&T (pending), Brooks (pending), Cable Laying Co. d/b/a Dial US (pending), Consolidated Communications (pending), Dial & Save (pending), Digital (pending), Kansas City Fiber Network (pending), MCImetro (pending), MFS (pending), Sprint (pending) and TCG (pending).	USLD has reached an interconnection agreement with SWB. PSC has approved an interconnection agreement between Dial US and SWB. (Docket No. T0-96-440). PSC will not allow third party intervention in arbitration cases. Arbitration: AT&T/SWB (decision due 12/14/96); AT&T/GTE (decision due 12/12/96); MCI/SWB (decision due 12/26/96); MFS/SWB (decision due 11/8/96); Sprint/GTE (decision due 1/8/97) and Sprint/SWB (decision due 1/15/97).
Montana (MT)	AT&T, Dial and Save, Excel, Mid River Tel Cooperative and Sprint have submitted notification letters-no certification is necessary for resellers as they are exempt from regulation. PSC jurisdiction over telephone cooperatives' CLEC applications is in questions (telephone cooperatives are outside the PSC's jurisdiction, however the PSC has authority to approve all CLEC applications).	Arbitration: Western Wireless/U S West (decision due 12/26/96). Issue to be addressed in Docket No. 92.2.16.
Nebraska (NE)	AT&T, Cox (pending), dial & Save (pending), Excel (pending), Firstel (pending), Sprint (pending) and TCG (pending).	Issue to be addressed in Docket No. C-1128. Arbitration: AT&T/U S West (decision due 12/1/96); AT&T/GTE (decision due 12/11/96); Spring/U S West (decision due

State	CLEC Certification	Interconnection Details
	A stay was removed on all CLEC applications following AT&T's certification.	1/11/97); TCG/U S West (decision due 11/8/96); Western Wireless/U S West (decision due 12/26/96) and Western Wireless/GTE (decision due 12/23/97).
Nevada (NV)	ACSI, AT&T, Brooks, Choice Tel (pending), Easy Cellular (pending), Electric Lightwave (pending), GE Capital, Gordon Tel (pending), GST Lightwave, HiRim Communications (pending), LCI, Multi-Technology (pending), NevTel, NextLink, Pacific Bell (pending), PCS, Phoenix FiberLink (pending), Priority Link (pending) and Sprint (pending).	ILECs must meet interconnection requests. Carriers are to reach negotiated agreements. terms and rates must be tariffed and are subject to PSC Approval (Docket No. 94-11035). Brooks and Phoenix FiberLink have reached interconnection agreements with Nevada Bell. Arbitration: PacTel/Sprint (decision due 1/6/97).
New Hampshire (NH)	AT&T (pending), Dial & Save (pending), Excel (pending), Freedom Ring (pending), Preferred Communications Services (pending), and Sprint (pending)	Docket No. DRM-95-091 opened to address local competition issues, including interconnection. NYNEX has received an interconnection agreement with Freedom Ring Communications. Arbitration: AT&T/NYNEX (decision due 11/8/96).
New Jersey (NJ)	AT&T, Eastern Telelogic, MCImetro, MFS, Sprint, and TCG.	Issue to be addressed in Docket No. TX-95120631 (decision anticipated by 12/31/96). MFS has reached an interconnection agreement with Bell Atlantic — but has filed for arbitration over loop pricing. Arbitration: AT&T/Bell Atlantic (decision due 12/1/96); MCI/Bell Atlantic (decision due 12/23/96); and TCG/Bell Atlantic (decision due 11/8/96).
New Mexico (NM)	ACSI (pending); AT&T (pending); Brooks (pending) and GST New Mexico Lightwave (pending). The NMCC recently issued directives allowing CLECs, in most cases, to register without a hearing. After registration, rates would be set at hearing. U S West filed a motion disputing the NMCC's authority to issue these directives. The NMCC denied the motion and proposed a rulemaking to address the directives. Hearing took place in August. Final rules should be forthcoming.	Issue may be addressed in Docket No. 95-766 (competitive docket) (procedural schedule has not yet been issued—workshops likely). Arbitration: ACSI/U S West (decision due 12/7/96); Brooks/U S West (decision due 12/27/96); Western Wireless/U S West (no decision scheduled) and Western Wireless/GTE (decision due 12/26/96).
New York (NY)	Virtually all certificated carriers are authorized to provide competitive local exchange services. Carriers with narrowly defined service authority must amend certificates. Carriers with CLEC authority include: ACC, Access, Allnet, Avant-Garde, AT&T,	Interconnection must be offered to all interested carriers on a nondiscriminatory basis. Carriers are to reach negotiated agreements. ONA rules and policies apply to incumbents and new entrants alike.

State	CLEC Certification	Interconnection Details
	<p>Cablevision Lightpath, Fibernet, Hyperion, Intermedia, LCI, LOCATE, MFS, NewChannels, PCS, RCN, SBMS/Cellular One, TCG, Time Warner, TotalTel, UrbanNet, USN, and WinStar.</p> <p>CAPs and CLECs must indicate areas they intend to serve.</p> <p>Several carriers, including AT&T, Cable & Wireless, LCI, and WorldCom have entered or plan to enter the local market through resale.</p>	<p>NYNEX has reached interconnection agreements with ACC, Cablevision Lightpath, Frontier (approved), MCImetro, MFS (approved), RCN, TCG, Time Warner, UTS (approved), and WinStar.</p> <p>NYNEX and MFS have reached an interconnection agreement that includes provisions for nondiscriminatory access to 911 and E-911 services, directory and operator assistance, white pages listings.</p> <p>Arbitration: AT&T/NYNEX (decision due 12/1/96; Manhattan Tel/NYNEX (decision due 12/18/96); MCI/NYNEX (decision due 12/26/96); and TCG/NYNEX (decision due 11/8/96).</p>
North Carolina (NC)	<p>AT&T (pending), BTI, Dial & Save (pending), Excel (pending), FiberSouth, Intermedia, MCImetro, Time Warner, Time Warner Connect, U S West/Interprise (pending), US LEC, and WinStar (pending).</p>	<p>Interconnection is required by law. Details are being addressed in the local competition Docket No. P-100, sub. 133, as well as in the LECs' individual price regulation dockets. Terms of interconnection, whether by tariff or negotiated agreement, must be filed with the NCUC. Competitive local providers ("CLPs") can begin negotiations with incumbent LECs once they have an application for local authority on file with the NCUC. LECs must negotiate in good faith — parties can bring disputes before the NCUC after 90 days.</p> <p>BellSouth has reached interconnection agreements with Hart, MCImetro, Intermedia (approved), Time Warner, TCG, Telco of Central Florida, and WinStar.</p> <p>Arbitrations: AT&T/BellSouth (decision due 12/4/96); AT&T/GTE (decision due 12/11/96); MCI/BellSouth (decision due 12/26/96); MCI/GTE (decision due 1/3/97); Sprint/BellSouth (no decision scheduled). NCUC will not allow third parties to intervene into arbitration cases.</p>
North Dakota (ND)	<p>AT&T (resale), Excel, MCImetro, McLeod, PCS, Spring (resale) and U S West (facilities-based authority).</p> <p>AT&T has applied for deregulation of its services, including the elimination of price caps and the prohibition on mandatory measured service. U S West and others have intervened. Sprint has applied for deregulation.</p>	<p>No specific commission rule concerning interconnection agreements.</p> <p>Carriers are free to reach negotiated agreements. Arbitration: Western Wireless/U S West (decision due 12/26/96).</p>
Ohio (OH)	<p>Ameritech (pending), AT&T, Brooks Fiber, Cablevision Lightpath, CBF (pending), Frontier, ICG, LCI (pending), MCImetro,</p>	<p>Upon bona fide request, incumbent LECs must negotiate in good faith and provide new entrant carriers ("NECs") with</p>

State	CLEC Certification	Interconnection Details
	<p>MFS, NextLink (pending), Preferred Carrier (pending), Scherers Comm. Group, Sprint (pending), Talk One (pending), TCG, Time Warner, USN, and WinStar (pending).</p> <p>Carriers are given conditional approval pending approval of tariffs and interconnection agreements.</p>	<p>interconnection (Docket No. 95-845-TP-COI). Incumbent LECs can choose between physical or virtual collocation at the end office, tandem switch or other mutually agreed upon meet point. Parties can bring disputes to PUCO for mediation and arbitration.</p> <p>Cost-based rates are subject to pricing ceilings—rates must be tariffed.</p> <p>Ameritech has filed a general statement of terms and conditions for interconnection, resale, traffic exchange compensation and number portability with the PUC.</p> <p>Ameritech has reached interconnection agreements with Brooks Fiber, CBG, ICG, MCImetro, MFS, and USN.</p> <p>PUCO has approved Time Warner's and MCI's interconnection agreements with Ameritech. PUCO stated that these agreements are not intended to set precedents.</p> <p>Arbitration: AT&T/Ameritech (decision due 11/27/96); AT&T/GTE (decision due 12/11/96); MCI/Ameritech (decision due 12/26/96); Sprint/Ameritech (no decision scheduled); Sprint/GTE (no decision scheduled); and TCG/Ameritech (decision due 11/8/96).</p>
Oklahoma (OK)	<p>ACSI (pending), AT&T, Brooks, Chickasaw Tel, Dialtone Savers (pending), Dobson, Excel (pending), Sprint, Terral Tel (pending), Total (pending) and USLD (pending).</p>	<p>Proposed rule requires interconnection upon a bona fide request. Carriers are required to negotiate terms and prices in good faith. During the period from the 135th through the 160th day (inclusive) after the date on which the ILEC receives a request for interconnection, disputes can be brought to the OCC for arbitration. Interconnection can be accomplished at any technically feasible point (Docket No. RM-19).</p> <p>USLD has reached an interconnection agreement with SWB.</p> <p>Arbitration: AT&T/GTE (decision due 12/13/96); AT&T/SWB (decision due 12/14/96), Sprint/SWB (decision due 1/3/97) and Western Okla. L.D./SWB (decision due 12/23/96).</p>
Oregon (OR)	<p>Ameritel (pending), APEX Communications (pending), AT&T, Beaver Creek Telephone, Citizens Telecom (pending), Dial & Save (pending), ELI (facilities-based/resale), Excel (pending), Frontier, GST (pending),</p>	<p>Interconnection required by either physical or virtual collocation (Docket No. AR-264 (ONA Docket)).</p> <p>ELI and U S West have reached an interim</p>

State	CLEC Certification	Interconnection Details
	MCImetro (resale), MFS (facilities-based/resale), Milliwave (pending), 99 Cents and More (pending), North Willamette Telecom (pending), OGI Telecom, Preferred Carrier Services, Oregon Trail Internet (pending), POPP Telecom (pending), RIO Communications (pending), RTI, Inc. (pending), Shared Communications Services (pending), Sprint Communications (pending), Sterling Int'l Funding (pending), TCG, Unicom (pending), Western PCS I (pending) and WinStar (pending).	interconnection agreement. Arbitration: AT&T/U S West (decision due 12/24/96); AT&T/GTE (decision due 12/11/96); MCI/U S West (decision due 12/24/96); MCI/GTE (decision due 12/30/96); MFS/U S West (decision due 12/4/96); TCG/U S West (decision due 12/4/96); Western Wireless/U S West (decision due 1/23/97) and Western Wireless/GTE (decision due 12/28/96).
Pennsylvania (PA)	AT&T (pending), C-Tec (pending), Cable & Wireless (pending), Eastern Telelogic, LCI (pending), MCImetro, MFS, NextLink, TCG, and WinStar (pending)	Interconnection is required -- rules to be established in Phase II of Docket No. A-310203-F-0002. ALJ decision in PUC arbitration of TCG/Bell Atlantic issues yielded termination rates of \$0.003 at the end of and \$0.005 at the tandem; \$5 non-recurring charge for listings in BA's directories; and quality of service guarantees for TCG (final decision due 12/6/96). MFS has reached an interconnection agreement with Bell Atlantic-- but has filed for arbitration over loop pricing (decision due 11/8/96).
Pennsylvania (PA) continued		Arbitration: AT&T/Bell Atlantic (decision due 11/26/96); AT&T/GTE (decision due 12/6/96); ET/Bell Atlantic (decision due 12/6/96); MCI/Bell Atlantic (decision due 12/27/96); MFS/Bell Atlantic (decision due 11/8/96); and TCG/Bell Atlantic (decision due 12/6/96).
Rhode Island (RI)	Brooks, PCS (pending), Sprint (pending), and TCG. Certification rules adopted July 1996.	Issue to be addressed in Phase I of local competition docket (Case No. 2252). NYNEX has reached an interconnection agreement with MFS. Brooks Fiber has reached a partial interconnection agreement with NYNEX and has requested arbitration of remaining issues (decision due 11/16/96). Arbitration: AT&T/NYNEX (decision due 12/1/96); MCI/NYNEX (decision due 12/23/96); and TCG/NYNEX decision due 11/8/96).
South Carolina (SC)	ACSI, AT&T, Intermedia, LCI (pending), and Sprint (pending).	Issue to be addressed in Docket No. 96-018-C. BellSouth also has reached interconnection agreements with ACSI, Hart, MCImetro, Intermedia (approved), Time Warner, TCG,

State	CLEC Certification	Interconnection Details
		Telco of Central Florida, and WinStar.
South Dakota (SD)	AT&T (pending), Dakota Telecom Inc. (pending), Dakota Telecommunications Systems (pending), Dial & Save (pending), Excel (pending), Firstel (pending), McLeod (pending), Midco Communications (pending), PAM Oil, Inc. d/b/a PAM Communications (pending) and Sprint (pending).	No formal commission rule in place on interconnection agreements. Carriers are free to reach negotiated agreements. Arbitration: Dakota Telecom and Dakota Telecommunications Systems/U S West (decision due 12/16/96) and Western Wireless/U S West (decision due 12/26/96).
Tennessee (TN)	ACSI, ATS, AT&T, Brooks Fiber, Comm. Depot, Hyperion, ICG, Intermedia, LCI, LDDS/WorldCom, MCImetro, MFS, NextLink, PCS, South East Telephone, Time Warner, and WinStar.	Interconnection is required on a nondiscriminatory basis (Admin. Rules, Div. of Pub. Utilities Sec. 1220-4-8-.10). Carriers are to come to negotiated agreements. Parties can request TRA mediation or petition for arbitration. TRA to determine a list of interconnection elements to be tariffed. Decision due 1/10/97. BellSouth has reached interconnection agreements with ACSI, Hart, MCImetro, Intermedia, Time Warner, NextLink, TCG, Telco of Central Florida, and WinStar. Arbitration: AT&T/BellSouth (decision due 12/4/96); Brooks/BellSouth (decision due 12/9/96); and MCI/BellSouth (decision due 12/9/96).
Texas (TX)	Certificates of Authority (COA) for facilities-based competitors (at the end of year 6, 27-mile build out requirement, resale can account for no more than 40 percent of revenues): AT&T; GTE Card Services, Inc. (pending); Kingsgate; MCImetro Access Transmission Services, Inc.; Paramount Wireless Communication of Texas (pending); Poka-Lambro Tel. Co., Plum Creek Tel. Co.; Sienna Tel. Co.; Southwestern Bell Tel. Co. (SWB); Sprint (waiver of build-out requirement granted); Time Warner; and W.T. Services, Inc (pending). Service provider certificates of authority (SPCOAs): Access Network Services; Accutel of Texas (pending); ACSI Advanced Technologies, Action Telecom; Amarillo Celltel Co.; America's Tele-Network Corp; American Communication Services of Amarillo, El Paso, Irving, and Ft. Worth; American Telco; Americas Conex; Austin Bestline Co.; Cable & Wireless; Call-For-Less Long Distance; Capital Telecom; CellTeleCo; Choctaw Comm.; Coastal Telecom; Cypress Telecommunications; DeLoach's Home Entertainment Center (pending); DMJ Communications; Easy Cellular; Express Telecommunications (pending); EZ Talk; Fast Connections; FXI	Local service interconnection is addressed in substantive rule 23.97. Consistent with federal law, physical collocation required. Carriers are to reach negotiated agreements and can petition the PUC for compulsory arbitration 135-160 days after negotiations commence. American Telco (approved), ACSI, Kingsgate, Time Warner Texas Communications South, USLD, US Telco, and MFS (on all issues except pricing of unbundled loop) have reached interconnection agreements with SWB. MFS has reached an interconnection agreement with GTE. Arbitration: PUC consolidated SWB arbitration cases with ACSI, AT&T, MCI, MFS and TCG. Arbitration Award, covering disputed issues, was signed 11/8/96; final disposition 12/19/96. Other arbitrations: ACSI/GTE (decision due 1/18/97); AT&T/GTE (decision due 12/13/96); Lone Star Net/SWB (decision due 3/7/97); MCI/GTE (decision due 12/14/96); Sprint/GTE (decision due 1/18/97); Sprint/SWB (decision due 1/15/97); and Western Wireless/GTE (decision due 1/1/97).

State	CLEC Certification	Interconnection Details
	<p>(pending); Globecom Communications (pending); GST Texas Lightwave; ICG Telecom Group, Inc.; Inter-tel Netsolutions; KMC Telecom, Inc.; LCI; LCT Long Distance; LDDS/WorldCom; Local Fone Service; Credit Loans, Inc. d/b/a Lone Star Communications; Lone Star Net; Lone Star Telephone; Masters Financial Services; Metro Access Networks; Metro Connection; Metro-Link; MFS Intelnet of Texas, Inc.; MFS of Dallas; MFS of Houston; Midcom (pending); MSN (pending); Nations Bell; Network Operator Services; North American Telco, NOS Communications; NTS Comm., Inc.; OpTel (Texas) Telecom; Penthouse Suites; Posner Telecommunications; Preferred Carrier Services, Inc. Progressive Concepts; Reitz Rentals, d/b/a Texas Teleconnect; Sterling Int'l Funding; Taylor Comm. Group; TCG Dallas; Teleport Houston; Texas Comm South; Time Warner Connect (pending); US Communications, Inc.; US Long Distance; US Online Communication; US Telco; USN Southwest, Inc; Valu-Line of Longview; Valu-Net; Westel; WIC Services d/b/a Local Telephone Service Company; WinStar Wireless of Texas, Inc.; World Access and WorldCom.</p> <p>In MFS' approval PUC determined that SPCOA holders can provide both resold and facilities-based services. PUC rejected GTE's SPCOA application (to resell in SWB areas).</p> <p>MCImetro's application was denied based on statutory language which makes carriers with more than 6% share of total intrastate switched access minutes of use ineligible to receive SPCOAs (MCImetro's appeal pending-arguments include preemption of these local resale entry barriers by the Telecommunications Act of 1996).</p>	
Utah (UT)	<p>AT&T, Citizens Telecom (pending), Dial & Save (pending), ELI, Excel (pending), GST Lightwave (pending), Phoenix FiberLink, Qwest Communication, NextLink, Sprint (pending), TCG, Western Wireless (pending) and WinStar (pending).</p>	<p>Carriers are free to reach negotiated agreements. ELI and U S West have reached an interim interconnection agreement.</p> <p>Arbitration: AT&T/U S West (decision due 12/3/96); MCI/U S West (decision due 12/23/96); Phoenix FiberLink/U S West (decision due 12/24/96); Sprint/U S West (decision due 1/15/97); TCG/U S West (decision due 11/8/96) and Western Wireless/U S West (decision due 12/26/96).</p>
Vermont (VT)	<p>AT&T (pending), Business Long Distance (pending), Hyperion (pending), and Sprint (pending).</p>	<p>Interconnection is mandated (Docket No. 5713). Hyperion has reached an interconnection</p>

State	CLEC Certification	Interconnection Details
		agreement with NYNEX. Arbitration: AT&T/NYNEX (decision due 12/1/96).
Virginia (VA)	ACSI (pending), AT&T, CFW (pending), Cox (pending), Interprise/Alternet, Hyperion (pending), Jones Communications, KMC (pending), MCImetro, MFS, PCS (pending), Sprint (pending), TCG, and WinStar (pending).	MFS has reached an interconnection agreement with Bell Atlantic – but has filed for arbitration over loop pricing (decision due 11/8/96). Arbitration: AT&T/Bell Atlantic (decision due 12/1/96); AT&T/GTE (decision due 12/11/96); Cox/Bell Atlantic (decision due 11/8/96); Cox/GTE (decision due 12/14/96); MCI/Bell Atlantic (decision due 11/8/96); and TCG/Bell Atlantic (decision due 11/8/96).
Washington (WA)	AT&T, Cable Plus, Citizens Telecommunications (pending), Dial & Save (pending), ELI, Executone (pending), Frontier, GST Telecom, Int'l Telecom, LCI Int'l Telecom (pending), MCImetro, FMS, NextLink, Sprint (pending) TCG and WinStar.	UTC has mandated interconnection in consolidated Docket Nos. UT-941464, 941465, 950146, 950265. U S West and GTE interconnection tariffs have been suspended and are under review. Testimony and hearings scheduled to be held in Fall 1996, with an order expected in late 1996 or early 1997. TCG has reached an interconnection agreement with GTE. Arbitration: AT&T/GTE (decision due 12/11/96); AT&T/U S West (decision due 12/1/96); Citizens/U S West (filed 10/8/96); MCI/GTE decision due 1/3/97); MCI/U S West (decision due 12/16/96); MFS/U S West (decision due 11/8/96); Sprint/GTE (decision due 1/19/97); Sprint/U S West (decision due 1/15/97) and TCG/U S West (decision due 11/8/96).
Washington D.C.	AT&T (pending), MFS, Sprint (pending), RealCom (pending), and TCG. Proposed rules call for a \$25,000 filing fee; streamlined processing of applications and relaxed regulations of new entrants.	Carriers are to reach negotiated agreements. PSC will intervene if a party seeks arbitration or mediation. Telecommunications Competition Act of 1996, Bill #11-258, requires Bell Atlantic to unbundle network elements as required by federal law. Bell Atlantic must offer elements under nondiscriminatory terms and conditions filed with the PSC. MFS has reached an interconnection agreement with Bell Atlantic - but has filed for arbitration over loop pricing (decision due 11/8/96). Arbitration: AT&T/Bell Atlantic (decision due 12/2/96); TCG/Bell Atlantic (decision due 11/8/96); MCI/Bell Atlantic (decision due 12/26/96); MFS/Bell Atlantic (decision due 11/8/96).

State	CLEC Certification	Interconnection Details
West Virginia (WV)	AT&T (pending), Citizens Telecom (pending), Dial & Save (pending), Excel (pending), and Sprint (pending).	Issue to be addressed in docket No 94-1102-T-GI.
Wisconsin (WI)	<p>AT&T, MCI, and Sprint each have authority to offer facilities-based local service to business and resale to residential customers.</p> <p>ACI (pending), Cable & Wireless, IntraKommunity Kommunications, KMC (pending), LCI, MCImetro, MFS (pending), TCG, Time Warner, and WinStar.</p>	<p>Carriers are to reach negotiated agreements. PSC established guidelines for negotiations. Related issues addressed in Docket No. 05-TI-138.</p> <p>Ameritech has reached interconnection agreements with GE Capital (rejected by PSC), MFS, and Time Warner.</p> <p>Arbitration: AT&T/Ameritech (decision due 12/26/96); AT&T/GTE (no decision scheduled); MCI/Ameritech (decision due 12/26/96); Sprint/Ameritech (no decision scheduled); and TCG/Ameritech (decision due 12/8/96).</p>
Wyoming (WY)	AT&T (limited to U S West exchanges), Dial & Save (pending), Excel (pending), PCS and Sprint (limited to U S West exchanges).	<p>Proposed rules call for nondiscriminatory interconnection through either physical or virtual collocation (Rulemaking No. 95-24). Carriers required to negotiate in good faith - disputes can be brought to the PSC for resolution. Carriers will function as co-carriers. Rates must be tariffed.</p> <p>Arbitration: Western Wireless/U S West (decision due 11/24/96).</p>

CHAPTER 4

NEW TELECOMMUNICATIONS STATUTES

The Report to the Texas Legislature on the Scope of Competition in Telecommunications Markets is produced by the PUC on a biennial basis. Never before this edition, however, have the changes in regulation and the role of the regulator been as drastic as they have been in the two-year period of this report -- 1995 and 1996. This chapter and the two following chapters address the changes in the state and federal statutes as well as changes in the role of the regulator. This chapter outlines the 1995 state statute and the 1996 federal statute, and describes efforts by both the PUC and the FCC to implement the statutes. Chapter 5 discusses the competitive safeguards that are needed and are being implemented in today's telecommunications arena, and Chapter 6 describes additional consumer issues.

The Public Utility Regulatory Act of 1995:

Telecommunications for the Future of Texas

OVERVIEW

House Bill 2128, which was signed by Governor George W. Bush on May 26, 1995, introduced sweeping changes in the way in which telecommunications utilities may operate and the way they are regulated in Texas. Now incorporated into the Public Utility Regulatory Act of 1995 (PURA95), HB 2128 introduced new mechanisms whereby competitors -- either facility-based companies or resellers -- may enter the local telecommunications service market. The incumbent telephone companies were given the option of electing into a new regulatory framework based on pricing incentives rather than on rate of return. The bill created a new fund designed to provide \$150 million each year for the next 10 years for distance education, information sharing, and telemedicine programs in order to stimulate demand for new telecommunications technologies.

The new statute encouraged **competitive entry** into the local exchange telecommunications market by establishing two new certification options, in addition to the traditional Certificate of Convenience and Necessity (CCN).

- The **Certificate of Operating Authority (COA)**, with which the holder may provide local service using its own facilities and some resale of the ILEC's loops.
- The **Service Provider Certificate of Operating Authority (SPCOA)** enables its holder to provide local service by reselling loops and the ILEC's retail

services, often at a discount. An SPCOA may not be obtained by a company with over six percent of the intrastate switched-access minutes of use.

Two new **regulatory alternatives** are now available for ILECs, each requiring a commitment for infrastructure modernization.

- **Incentive Regulation plan (Subtitle H)**, under which the electing ILEC is not subject to earnings reviews or complaints as to reasonableness of its rates, revenues, or earnings. Different pricing requirements for three service baskets:
 - *Basket I rates, for basic network services, may not be increased for four years, except under certain narrowly specified circumstances.*
 - *Basket II rates, for discretionary services, may be set anywhere between a floor of long-run incremental cost (LRIC) and a ceiling initially equal to the rate level in effect on September 1, 1995.*
 - *Basket III rates, for competitive services, may be set at any level above LRIC (so long as at least one other provider of the service is readily available in the area).*
- **Infrastructure Plan for Rate of Return Companies (Subtitle I)**, open to all ILECs other than SWB and GTE, requires the electing ILEC not to raise any of its rates for six years, with certain specified exceptions. During this period the ILEC is not subject to any complaint or hearing regarding the reasonableness of its rates, revenues, or earnings.

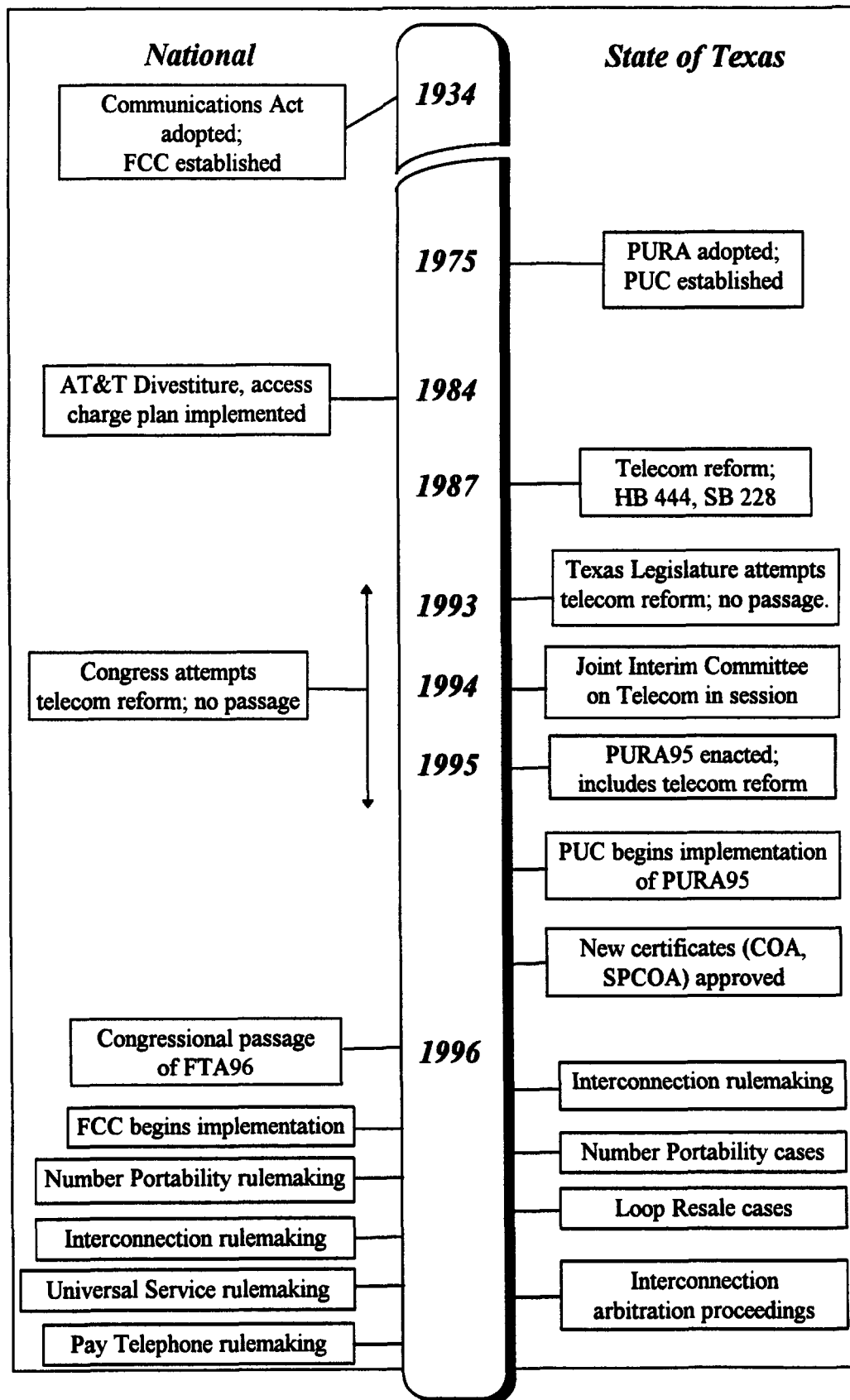
Both alternative-regulation plans require electing ILECs to meet **infrastructure upgrading standards** and to provide special rates to specified public entities (e.g., schools, libraries, and telemedicine centers of public or non-profit medical institutions) for certain private network services.

All holders of a CCN or COA must make a **minimum level of basic services** available to all subscribers, including single-party service, tone dialing, basic custom calling features, digital switching capability, and equal access to interexchange carriers (IXCs), by December 31, 2000.

To foster fair competition and accelerate improvements in telecommunications, the PUC is directed to implement a number of **competitive safeguards**:

- Requiring ILECs to unbundle their networks, at least to the extent ordered by the FCC.
- Requiring SWB, GTE, and other ILECs electing incentive regulation to file loop resale tariffs, and requiring the eventual elimination of various resale prohibitions in ILEC tariffs.

Figure 4.1: A Chronology of Regulatory Events



- Requiring ILECs to negotiate with and provide network interconnection to competing local service providers. If necessary, the PUC is to establish rates and terms.
- Requiring the PUC to adopt rules for expanded interconnection that are consistent with FCC rules.
- Requiring the PUC to adopt rules requiring ILECs to impute the prices of necessary monopoly elements or services to competitive services.
- Requiring the PUC to adopt measures, including interim measures, to ensure telephone number portability.
- Requiring the PUC to adopt a pricing rule by April 1, 1997. Associated cost studies of SWB and GTE must be filed by November 1, 1996, absent waivers.

IntraLATA dialing parity is to be implemented when all ILECs in Texas are permitted to provide interLATA telecommunications service.

Greater regulatory freedom is allowed by the new statute for **small incumbent telephone companies and telephone cooperatives**:

- A **small local exchange company (SLEC)**, which serve fewer than 31,000 lines in Texas, may offer expanded local calling service (ELCS) or new services, or make minor rate changes, by notifying its customers and the PUC. The PUC was also directed to modify some of its rules to lessen regulatory burdens on SLECs.
- A **Cooperative** is allowed to become partially deregulated if a majority of its members votes to do so.

PURA95 established the **Telecommunications Infrastructure Fund (TIF)** to provide grants and loans for public projects using advanced telecommunications facilities. One account, funded by telecommunications utilities (including all local-service providers and IXC's), collects \$75 million annually for public-school wiring and equipment purchases. A second account, funded by commercial mobile radio service providers, was designed to collect \$75 million annually for public education and other public projects.

The PUC was given authority to expand the **Texas Universal Service Fund** to help maintain reasonable local-service rates in the event of important changes in laws or regulatory policies or rules.

The PUC was given limited regulatory authority over providers of **pay telephone service**, involving such items as registration, price ceilings on long-distance calls, and information-posting requirements. Payphone providers are allowed to charge 25 cents for

“800” calls, other than access-code calls to reach a customer’s preferred interexchange carrier (IXC).

Provisions for **Expanded Local Calling Service (ELCS)** were clarified and modified. An additional charge of \$1.50 per line is authorized for each exchange in excess of five (whether obtained in one or more petitions) for which the petitioning exchange requests ELCS.

New consumer protections were established requiring that information be given to subscribers of **Caller ID** services and prohibiting the use of **customer proprietary network information** for purposes unrelated to the sale, provision, or billing and collection of telecommunications or enhanced services.

IMPLEMENTING PURA95

Competitive Certification

PURA95 created two new certificates to supplement the traditional Certificate of Convenience and Necessity (CCN) and promote competition in the local exchange telephone market. Both certificates require the Commission to review the financial and technical abilities of the applicant. The statute requires the Commission to process these applications within 60 days of receipt, though extensions may be granted with good cause.

The COA, defined in §3.2531 of the statute, is a facilities-based certificate. PURA95 decrees that the COA applicant must construct its network in a reasonably compact area of at least 27 square miles within six years of its application. The COA holder is allowed to partially meet this requirement through resale of the ILEC’s facilities for up to 40 percent of the build-out area.²⁴ In accordance with §3.258(a), the COA holder also must meet certain quality of service standards and universal service obligations. As of December 12, 1996, 10 COAs have been granted by the Commission; five COA applications were pending Commission action. Though no COA applications had been denied, two had been withdrawn, and two others had been refiled as Service Provider Certificate of Operating Authority applications.

Requirements for the SPCOA are provided in §3.2532 of PURA95. With this certificate, a new competitor is authorized to provide telecommunications through resale. Additionally, the Commission ruled in Docket No. 14665 (MFS of Dallas and of Houston) that SPCOA holders are not prohibited from owning and using their own facilities in conjunction with resale. The SPCOA allows a certificate holder to obtain usage-sensitive-priced local loops under resale tariffs from ILECs and to resell monthly local flat rate local exchange telephone services, in many cases at a five-percent discount. The SPCOA is not available to any company which, together with its affiliates, had in excess of six percent of

²⁴ In June the Commission waived the build-out requirement pending an FCC ruling on whether it is preempted by FTA96 §253(a-b) as an improper barrier to entry.

the total intrastate switched access minutes of use in the most recent 12-month period. Section 3.258(a) does not hold SPCOA carriers to the same quality of service standards and universal service obligations as COA or CCN holders.²⁵

As of December 12, 1996, 69 SPCOA applications had been approved by the Commission. Most of these applications requested serving areas for all of the state, excluding small ILEC areas, though some were restricted to smaller areas. In addition, the certificates for certain start-up companies were restricted to resale of an ILEC's flat-rate services only. Moreover, certain companies with questionable financial qualifications were required to maintain performance bonds as a condition for providing service. For example, the SPCOA granted Masters Financial Services (Docket No. 15810) requires the maintenance of a performance bond and is restricted by geographic area to southern Dallas County and by type of service to resale.²⁶

Four applications have been denied. Three of these four were filed by AT&T (Docket No. 15445) and MCI Metro Access Transmission (Docket Nos. 14676 and 15606). These applications were rejected because they violated the six-percent switched-access-minutes-of-use limitation in PURA95 §3.2532(b).²⁷ The Commission denied the fourth application (Docket No. 15760), filed by GTE Southwest for areas not covered by its CCN, on the grounds that PURA95, taken as a whole, does not contemplate granting an SPCOA to a telecommunications carrier of the size and magnitude of GTE Southwest, which is an ILEC already providing local exchange and basic local telecommunications services in Texas.

Also as of December 12, 1996, eight SPCOA applications had been withdrawn, and nine were pending before the Commission.

²⁵ Additional requirements are being considered for application to non-incumbent carriers in the Commission's Project No. 14960.

²⁶ In its Order in Docket No. 15810, the Commission sought to provide guidance as to the nature and scope of the financial and technical ability requirements of PURA95 § 3.2532(a-b). The Commission also directed the Commission Staff to initiate a rulemaking project to address such requirements more fully.

²⁷ The commission ruled, in April 1996, that this limitation is not preempted (as a barrier to entry) by FTA96. Nevertheless, in May 1996, the commission asked the FCC for confirmation of this judgment. (At the same time, the Commission requested of the FCC a ruling on whether the build-out requirement imposed on COA holders was preempted.)

Other PUC Activities Related to Telecommunications and PURA95

The following items have appeared in the *PUC Update*, and represent reports of the major activities in telecommunications, including implementation of PURA95 and FTA96 items, since the last session of the Texas Legislature:

January 1995

Relay Texas Sign Language Video Conference Experiment

The first nationwide video relay interpreting service began in Austin in a month-long experiment that allowed the relay interpreters of Relay Texas and persons who are deaf to be able to see each other and speak in sign language. Relay Texas is a statewide telecommunications service that provides telephone interpreting between people who can hear and those who are deaf. Communicatively disabled persons use teletypewriters to call Relay Texas, where agents vocalize the typed text to the hearing person on the other end of the telephone. The video interpreting experiment allowed a deaf person to call the Relay Texas Center and be able to talk to a relay interpreter on a computer in sign language. The experiment was considered a success, although further testing is needed before it can be offered as a standard feature of the telecommunications relay service.

Approval of Integrated Services Digital Network (ISDN) Rule

This rulemaking hastened the deployment of ISDN, the technology that provides high-speed transmission of computerized information and an assortment of services over a single telephone line. Subst. R. § 23.69 requires the two largest local telephone companies in Texas, Southwestern Bell Telephone Company (Southwestern Bell or SWB) and GTE Southwest, to deploy ISDN according to national industry standards for quality and consistency in all exchanges with 50,000 or more access lines. Under the rule, the following SWB exchanges should have ISDN capabilities as of July 1996: Abilene, Amarillo, Beaumont, Brownsville, McAllen, Corpus Christi, Fort Worth, El Paso, Longview, Tyler, Lubbock, Midland, Odessa, Laredo, Waco, and Wichita Falls. GTE exchanges that should have ISDN capabilities are: Irving, Lewisville, Carrollton, Plano, Garland, San Angelo, College Station, and Denton. These cities join Austin, Dallas, Houston, and San Antonio in having ISDN capability. The rule also requires all other local telephone companies to file with the PUC their plans for making ISDN available by January 1, 2000.

July 1995

SWB Refund of \$48 Million for Fourth Year of Incentive Regulation

Commissioners directed Southwestern Bell to refund \$48 million to Texas ratepayers as a result of an earnings sharing provision of an incentive regulation plan. PUC analysts estimated that the refund would translate into a one-time credit of about

\$5.50 for residential customers and a \$4.30 for business customers. The incentive regulation plan, known as Docket No. 8585, went into effect in November 1990 and established a four-year program under which some SWB rates were reduced and some rates (including local exchange rates) were capped for the period.

MCI Complaint Against SWB Regarding the 214 Numbering Plan Area

MCI Telecommunications Corp. filed a request for a cease-and-desist order to block the implementation of the planned overlay of the 972 area code for the Dallas 214 area. MCI claimed that the overlay proposed by SWB, the numbering plan administrator, was anti-competitive.

August 1995

OPC Requests Houston Overlay Plan be Considered with Dallas Case

While the Commission considered the anti-competitive aspects of the proposed Dallas area code overlay, the Office of Public Utility Counsel (OPC) filed a motion to have the Houston 713 overlay considered. The Houston overlay was still in the year-long permissive dialing period, having been implemented in March 1995. The two dockets were consolidated in October 1995, and sent to SOAH for hearings.

September 1995

Local Telephone Competitive Service Certification Begins

On September 1, 1995, the Public Utility Regulatory Act of 1995 (PURA95) became effective. PURA95 opened up the local telephone market to competition with the creation of the two new certificates, the service provider certificate of operating authority (SPCOA) and the certificate of operating authority (COA). The SPCOA allows providers to resell telecommunications services of an incumbent local exchange carrier. The COA allows for facilities-based local exchange competition and requires the holder to serve customers in a 27-square mile minimum "build-out" area.

October 1995

MCI's SPCOA Application Denied

Commissioners voted to dismiss MCImetro Access Transmission Services, Inc.'s application for a service provider certificate of operating authority (SPCOA). The SPCOA allows the holder to provide telecommunications services in the service territory of any local exchange company serving 31,000 or more access lines. The application was dismissed under PURA 95, Section 3.2532 (b) because MCI was found to have an excess of six percent of the total intrastate switched access minutes of use as measured by the most recent twelve-month period. The case hinged on the definition of "switched-access minutes of use" which is not defined in PURA 95. Commissioners upheld the

Administrative Law Judge's (ALJ's) definition that only switched access minutes purchased by an interchange carrier should be counted.

November 1995

Infrastructure Allowed for SPCOA Holders

Commissioners approved applications for MFS Communications, Inc. to provide local telephone service in Dallas and Houston. MFS was granted service provider certificates of operating authority (SPCOAs). The decision allowed MFS to provide local service by using their existing network along with the resale of local service provided by incumbent local exchange carriers.

December 1995

Kingsgate Granted First COA

Kingsgate Telephone, Inc. was granted the first certificate of operating authority (COA) to provide local telephone service in a subdivision of Houston. Kingsgate's three-year build-out plan comprises about 18.5 square miles or 61 percent of its service area.

January 1996

Area Code Public Hearings in Dallas and Houston

PUC Commissioners and staff held public hearings in Houston and in Dallas to gather public input and provide consumer education on the implementation of new area codes in Dallas and Houston. The primary question in consideration was whether to overlay a new area code over the existing area or to introduce a new area code by splitting the existing areas geographically.

Caller ID Privacy Rules Adopted

Commissioners approved amendments to the Caller ID privacy rules and other services that have the potential of compromising the privacy of telecommunications users. The new rules provide for the creation, operation, and oversight of the Caller ID Panel. The panel will function as a state agency advisory committee and will give Texas telephone users greater protection as well as a committee with which to register complaints.

February 1996

More Area Code Public Hearings for Dallas and Houston

Commissioners held a second round of public hearings in Dallas and Houston concerning the implementation of new area codes. Public hearings were held in the Dallas

suburbs of Richardson, Mesquite, and DeSoto and in the Houston suburbs of Tomball, Pasadena, and Stafford.

Area Code Geographic Split Approved for Dallas and Houston

After the completion of nine public forums in Dallas and Houston, Commissioners voted to add new area codes to the two cities by geographically splitting the existing areas. The other option available was to overlay the calling areas with a new area code. Traditionally, area codes have been geographically split when telephone numbers were exhausted. For Dallas and Houston, Southwestern Bell, the number plan administrator for Texas, recommended an overlay for both areas and had already implemented an overlay in the Houston area.

Payphone Rule Adopted

A 25-cent limit on local payphone calls and a registration requirement for private payphone providers were established in an amendment to the Commission's payphone rule. The rule allows private payphone providers who are registered with the Commission to charge 25 cents for calls to 800 numbers, excluding calls to the Telecommunications Relay Service and 800 calls to access a long-distance carrier.

March 1996

Federal Telecom Workshop Held

The PUC sponsored a workshop to address the federal Telecom Act of 1996. Panels of experts from the telecommunications industry discussed regulatory reform, interconnection, entry into interLATA markets, and universal service reform.

Time Warner COA Approved

Commissioners approved the application of Time Warner Communications for a certificate of operating authority (COA) in Travis and Williamson Counties, Texas. The COA allows Time Warner to provide local exchange telephone service within a 90-square mile service area that includes portions of Williamson and Travis counties. Austin CableVision and Round Rock CableVision, Time Warner's cable affiliates provide the telephone service.

Area Code Planning for 817 and 210

In an effort to avoid the problems that surrounded the implementation of the new area codes in Dallas and Houston, the Commission established a project to address the impending exhaustion of the 210 and 817 area codes. Commission staff, along with interested parties, held the first in a series of meetings to develop proposals to introduce new area codes in the 210 and 817 calling areas.

April 1996***AT&T Granted a COA***

AT&T was granted a certificate of operating authority (COA) to provide local exchange telephone service within the service territory of GTE Southwest throughout Texas. AT&T proposed to provide a full range of voice-grade services, including residential and business services.

Interconnection Rule Adopted

Commissioners adopted a rule relating to the interconnection of local exchange service. The rule, authorized by Section 3.458 of PURA 95, delineates the purpose and application of the section, outlines principles of interconnection and minimum interconnection arrangements, establishes timelines and procedures for negotiations, sets up a compulsory arbitration process, and requires certain consumer safeguards be implemented.

May 1996***ISDN More Accessible***

The Commission approved lower rates and new tariffs for integrated services digital network (ISDN), a service that provides high-speed transmission of computerized information and an assortment of services over a single telephone line. New ISDN rates for Southwestern Bell were effective May 22. Under the new rates, installation charges dropped by nearly one half.

Approval of EAS in Dallas and Houston Areas

Commissioners approved several extended area service (EAS) petitions for the Dallas and Houston areas filed in Docket No. 14686. EAS is a flat-rate calling plan between two contiguous exchanges or between an exchange and a contiguous metropolitan calling area. Several other EAS petitions had been put on hold, pending the outcome of this decision. The long-distance carriers had argued that the EAS petitions were anti-competitive.²⁸

²⁸ The PUC majority held that the anti-competitive concerns were addressed by new service options made available to competing phone providers under FTA96. Commissioner Gee dissented, arguing that PURA95 required the ILECs to prove imputation of costs, which had been done in only one case.

June 1996***Commission Waives Build-out Requirement for Sprint***

A preliminary order allowed Sprint Communications to enter the local exchange market without committing to building a telecommunications network. Commissioners determined that the build-out plan called for in PURA could deter the entrance of some companies into the Texas telecommunications market. The decision was a victory for the three largest long-distance providers, who were precluded from reselling the services of the existing local exchange carriers due to legislation passed in Texas in 1995.

AT&T, MCI SPCOA Applications Dismissed

The applications of AT&T Communications of the Southwest, Inc. and MCI Metro Access Transmission Services, Inc. for service provider certificates of operating authority (SPCOAs) were dismissed. The Commission decision was based on its ruling in the May 8, 1996, order on certified issues.

GTE ISDN Rates Rejected

Commissioners rejected GTE-SW's proposed rates and remanded the case to resolve certain issues with determining rates, terms, and conditions for Integrated Services Digital Network (ISDN). The case had been filed to comply with the Commission's ISDN rule, Substantive Rule 23.69, which requires all dominant certificated telecommunications utilities to file an application by Nov. 20, 1995, to make ISDN services available to their customers.

July 1996***Telecom "Peace Talks" Held***

At the request of Chairman Wood, industry representatives and other interested parties met to discuss critical issues facing the telecommunications industry. The goal of the meeting, known informally as the telecom "peace talks," was to find out what is best for the customer as competition begins, to avoid a wave of litigation, and to obtain necessary input from the Legislature. After the initial meeting, the peace talks were put on hold, in light of the Commissioners' decision to personally negotiate the telecommunications arbitration hearings.

Payphone Audit Conducted

PUC staff audited private pay phones throughout the state to identify pay phones that were not in compliance with state law. Effective September 1, 1995, Texas state law requires pay phone owners to register with the Commission and also provides for new consumer protection provisions.

August 1996***Public Hearings Held for 210 and 817 Calling Areas***

Commission staff held public hearings in several cities in the 210 and 817 calling areas to present proposals for area code relief and to gather public comment on the proposals. Both the 817 and 210 area codes are scheduled to exhaust in 1997. Hearings for the 210 calling area were held in Brownsville, Laredo, Uvalde, Kerrville, and San Antonio and in Waco, Fort Worth, and Wichita Falls in the 817 calling area. A final decision on the implementation of new area codes for these two areas is scheduled to be made in late 1996.

MCI, SWB, Sprint Granted COAs for GTE Territory

MCImetro Access Transmission Services, Inc. and Southwestern Bell Telephone Company were granted certificates of operating authority (COAs) to provide a full range of telecommunications services within the territory of GTE Southwest of Texas. Both MCI and SWB qualified for a waiver of the build out requirement in PURA '95 because the prohibitions of GTE's provision of interLATA services were removed in the federal Telecommunications Act of 1996.

October 1996***Southwestern Bell Arbitration Award Issued***

In an arbitration proceeding required by the federal Telecommunications Act of 1996, the Texas PUC established key ground rules for local telephone competition in Texas. The PUC's final award included an interim rate of \$15 per month for leasing the SWB local loop, a 21.6 percent discount for resold services, and terms for the interconnection of competing telephone networks. The arbitration awards were finalized by the PUC for the combined case between Southwestern Bell and five competitors: AT&T, MCI, MFS, TCG, and ACSI. (Additional details are included in Chapter 5 describing the arbitration issues.)

November 1996***Area Code Plans Approved for 817 and 210 Areas***

The Commission approved the recommendations of a working group that had been evaluating ways to implement new area codes in the existing 817 and 210 areas. Numbers in the existing area codes are expected to exhaust in late 1997 (817 area) and early 1998 (210 area). The recommendation was the result of an eight-month effort to resolve the issues surrounding the area code exhaustion, and included eight regional hearings to receive public comment. The working group, consisting of PUC staff, industry representatives, consumer groups, city officials, and the Office of Public Utility Counsel, recommended three-way splits for both of the current area codes. In the 817 area, Fort Worth keeps the 817 code, and the outlying area is split into two new codes, with the

receive public comment. The working group, consisting of PUC staff, industry representatives, consumer groups, city officials, and the Office of Public Utility Counsel, recommended three-way splits for both of the current area codes. In the 817 area, Fort Worth keeps the 817 code, and the outlying area is split into two new codes, with the Waco area receiving 254, and the Wichita Falls area receiving the 940 code. The current 210 area would also be split three ways, with San Antonio continuing to be served by the 210 code, the northern portion of the current area (including New Braunfels, Fredericksburg, Kerrville, and Uvalde) receiving the 830 code assignment, and the southern region (including Brownsville, Laredo, and McAllen) receiving the 956 code.

December 1996

GTE Arbitration Award Proposed

A PUC Administrative Law Judge served as the arbitrator in a consolidated proceeding, involving arbitration petitions of AT&T and MCI to establish interconnection agreements with GTE/Contel. The arbitrator proposed an interim rate of \$25.49 per month for leasing the basic 2-wire local loop, a 22.99% discount for resold services, and terms for interconnecting the networks. The PUC is expected to rule on the proposed arbitration award, and the agreements filed in accordance with the award, within 30 days of the submission of such agreements.

The Federal Telecommunications Act of 1996

OVERVIEW

The Telecommunications Act of 1996 (FTA96) fundamentally changes telecommunications regulation on a nationwide basis. FTA96 erects a “pro-competitive deregulatory national framework designed to accelerate rapid private sector deployment of advanced telecommunications and information technologies to all Americans by opening all telecommunications markets to competition.”²⁹ FTA96 directs the Federal Communications Commission (FCC) to undertake a massive rewriting of rules pertaining to telecommunications carriers, primarily with an eye to introducing widespread competition in the provision of local exchange telephone service. Some of the main provisions of FTA96 are noted below.

FTA96 establishes three possible **entry paths** for new local-service competitors: (1) as a facilities-based carrier, interconnecting with the ILEC’s facilities; (2) purchasing unbundled network elements from the ILEC; and (3) reselling the ILEC’s retail services.

All LECs, including new providers, are obligated to **interconnect** with other carriers in accordance with specified standards.

All LECs also are subject to **other obligations** relating to resale, number portability, dialing parity, access to rights-of-way, and reciprocal compensation.

ILECs have additional responsibilities, as indicated below.

- To negotiate and provide interconnection, at any technically feasible point and at cost-based rates.
- To offer for resale at wholesale rates any services offered at retail to non-carrier customers. (All LECs must resell their services without unreasonable or discriminatory conditions.)
- To provide non-discriminatory access to their network elements on an unbundled basis.
- To provide competitors with notice of relevant network changes.
- To allow collocation of equipment necessary for any competitor to interconnect or gain access to unbundled elements.

Any **rural LEC** (defined in FTA96) is exempt from these additional obligations of ILECs until (1) it receives a bona fide request for interconnection or for sale of services or network elements, and (2) the state commission determines that the request is not unduly

²⁹ S. Conf. Rep. No. 104-230, 104th Cong., 2d Sess. 1 (1996).

onerous, is technically feasible, and is consistent with FTA96's universal-service provisions.

Any LEC with fewer than two percent of the nation's subscriber lines may petition the state commission for suspension or modification of all requirements imposed on ILECs (including those imposed on both ILECs and new entrants).

All LECs must provide **number portability** to the extent technically feasible, in accordance with FCC requirements (issued in July 1996).

An agreement between the ILEC and a competitor may be achieved by **negotiation**, with the **state commission mediating** disputes if requested.

If requested, **arbitration by the state commission** is authorized for unresolved issues.

The FCC is required to create or designate one or more impartial entities to administer the **North American Numbering Plan**, previously administered by Bellcore. All or part of this task may be delegated to state commissions.

The FCC has **authority to preempt** any state or local law or regulation constituting a barrier to entry for any entity seeking to provide inter- or intrastate services. States may impose competitively neutral requirements to protect public safety, consumers' rights, and service quality, and to preserve universal telephone service.

New provisions are included relating to provision of **interLATA service**:

- GTE freed to provide interLATA service immediately.
- Bell Operating Companies (BOCs) permitted to provide interLATA service outside their home regions.
- The FCC may allow a BOC to provide in-region interLATA service only when it meets a number of specific conditions:
 - * First, the BOC must have completed at least one FCC-approved interconnection agreement with a facilities-based competitor; or
 - * No facilities-based competitor has requested interconnection by December 8, 1996, and the state commission has approved an acceptable BOC statement of generally available terms and conditions.
 - * In addition, the BOC must satisfy a 14-point competitive checklist enumerated in FTA96.
 - * The state commission and the U.S. Attorney General are to serve in an advisory capacity in the FCC's evaluations.

IntraLATA dialing parity is required when a BOC is allowed to provide in-region interLATA service. Normally, a state may not require such dialing parity until the BOC may provide interLATA service.

Electric utility holding companies are allowed to create “**exempt telecommunications utilities**” for providing telecommunications service.

With aid from a federal-state joint board, the FCC must complete a rulemaking by May 8, 1997, to implement a comprehensive **universal service** plan, consistent with principles set forth in FTA96. The plan will feature an explicit, competitively neutral support system.

Rate averaging of interstate and interexchange services is also mandated. Rates charged by a provider to subscribers in rural and high cost areas may be no higher than those charged by that provider to subscribers in urban areas. Further, rates charged by a provider for interstate services in one state may not be higher than the rates charged by that provider in any other state.

Other provisions require access to telecommunications services by persons with disabilities; encourage regulatory reform; remove the ban on cross-ownership of cable TV and telecommunications carriers, though with buy-out restrictions; permit BOCs to enter the electronic publishing business only through separate subsidiaries or joint ventures; forbid BOCs from subsidizing or otherwise discriminating in favor of their own payphones; and require per-call compensation for payphone use.

IMPLEMENTING THE FEDERAL ACT

The sweeping regulatory changes embodied by the new statute require extensive revisions to the rules and regulations of both the FCC and state commissions. FTA96 advances communications technology at a rapid pace while it simultaneously lessens the regulations that govern it. This section focuses on the responsibilities that state and federal regulators are facing in this time of transition.

Since the adoption of FTA96, the FCC has taken dozens of actions, including the issuance of notices and orders and the conduct of public workshops in the process of implementation of the Act. The following listing includes major proceedings that are expected to have a direct impact on Texas regulators and companies:

Interconnection: Interconnection is one of the three major components of telecommunications reform as viewed by the FCC. A number of critical issues are being addressed in the FCC proceeding on interconnection (CC Docket No. 96-98), including unbundling, negotiation, arbitration and approval of agreements, collocation, and pricing of services. The contentiousness and complexity of the issue is illustrated by the petitions

for reconsideration and judicial appeals (discussed in detail in Chapter 5 of this report) of the FCC's 800-page order in this proceeding.

Universal Service: As the second major component of the telecommunications reform trilogy, the universal service issue involves support for the provision of service to high cost areas of the nation, support for low-income subscribers, and support for specific public entities such as schools, libraries, and health care. These issues are addressed in Section 254 of FTA96, and in the FCC's rulemaking in CC Docket No. 96-45. FTA96 requires the FCC to institute a Federal-State Joint Board, which is charged to provide a recommended course of action to the FCC no later than November 8, 1996, and that recommendation has been issued. Then, the statute requires the FCC to make a decision on the universal service issues no later than May 8, 1997.

Access Charges: While this issue was not given statutory deadlines and specific guidance within FTA96, it has nonetheless been named as the third critical issue of the reform trilogy. Interstate access charges contain elements of long term support and other implicit support or subsidy mechanisms that must be analyzed and reshaped in conjunction with universal service and competitive reforms. At the deadline of this report, the FCC is expected to issue a notice of inquiry or a rulemaking to consider the access charge issue, but it has not yet been issued.

Payphone Services: FTA96 directed the FCC to take specific actions with regard to payphone compensation and other competitive issues. In response, the FCC has conducted a rulemaking in CC Docket No. 96-128, which is discussed further in Chapter 3 of this report. In addition to determining carrier compensation issues, the FCC has concluded that all ILEC payphones should be removed from regulation, and that rates for calls from payphones, including local coin calls, should be market-based.

BOC Entry into InterLATA: Section 271 of FTA96 allows BOCs, including Southwestern Bell, to provide interLATA long-distance service after certain conditions are met. The FCC is examining the issue of accounting safeguards in CC Docket No. 96-150, and will be initiating a rulemaking on a complaint review procedure within the next few months.

In addition, the FCC has conducted or will soon be conducting a number of proceedings that do not have a direct impact on the PUC, such as BOC manufacturing and electronic publishing, spectrum management, broadcast ownership, cable reform, and adult video programming issues.

Preemption Issues between FTA96 and PURA95

Since the passage of FTA96, numerous pleadings have been filed concerning whether provisions of PURA95 have been preempted by FTA96, both before the Commission and the FCC. In FCC DA 96-888 and CCBPol 96-14, the Commission and other parties have filed petitions and responsive pleadings addressing the issue of whether FTA96 preempts PURA95. The FCC is expected to issue a declaratory order in that docket by the end of 1996. The following discusses the positions for and against preemption of three PURA95 provisions:

1. the build-out requirement of § 3.2531,
2. the six percent limitation of §3.2532(b); and
3. the prohibition against municipalities entering into the telecommunications business in §3.251(d).

BUILD-OUT REQUIREMENT FOR HOLDERS OF A CERTIFICATE OF OPERATING AUTHORITY (COA)

One of the most contested issues before the FCC is whether the build-out requirement of PURA95 §3.2531 is preempted by FTA96. The Commission has taken the position before the FCC that if the requirement promotes competition, it is not preempted by FTA96 §253; if it unreasonably deters competitive entry, however, the Commission requested that the preemption be drawn as narrowly as possible.

AT&T, MCI and the Competitive Policy Institute (CPI) argue that the build-out requirement unreasonably deters competitive entry by making entry prohibitively costly.³⁰ AT&T, for example, states that "the economic effect of the build-out provision is by its very nature prohibitive: the provision requires a prospective entrant to make a hugely disproportionate investment by building facilities sufficient to serve all customers within its service area even through the entrant begins with no local customers at all ..." ³¹ AT&T also argues that FTA96 recognized this disproportionate investment by allowing competitors the ability to enter into the local telephone market without having to build their own networks.³²

³⁰ Pursuant to PURA95 §3.2531(f), the Commission found good cause to give Sprint Communication Company L.P. a temporary waiver of the build-out requirement. Docket No. 15990, *Application of Sprint Communications Company L.P.*, Supplemental Preliminary Order (June 26, 1996).

³¹ CCBPol 96-14, "Comments of AT&T on Petitions for Declaratory Rulings Regarding Preemption of Texas Law," *In the Matter of Petitions for Declaratory Rulings Regarding Preemption of Texas Law* (July 3, 1996), p. 7.

³² *Ibid.*, pp. 8-9.

Parties favoring preemption also disagree with the Commission's position that the build-out requirement is not preempted if it promotes facilities-based competition. Although these parties argue that the build-out requirement actually discourages facilities-based competition by requiring disproportionate investment, they argue that even if the build-out requirement promotes facilities-based competition, the requirement is preempted by FTA96, as long as the build-out requirement acts as a barrier to entry by mandating a particular method of entry.³³

SIX PERCENT LIMITATION TO BECOME A HOLDER OF A SERVICE PROVIDER CERTIFICATE OF OPERATING AUTHORITY (SPCOA)

A number of parties filed comments arguing that the restriction in PURA95 §3.2532(b), which prohibits the Commission from granting an SPCOA to carriers with more than six percent of intrastate switched access minutes of use, is preempted by FTA96.³⁴ OPC, for example, argues that denying those carriers the opportunity to obtain an SPCOA is, in effect, an outright prohibition on resold services. Moreover, OPC argues that even if the six percent limitation promotes universal service, it is preempted by FTA96 because it is not competitively neutral.

If a carrier cannot obtain an SPCOA based on the six percent limitation its alternative is a COA. Consequently, it is likely that any rulings by the FCC, as to whether the six percent limitation provision (SPCOA) and the build-out requirement (COA) are preempted, will examine these certification requirements as a whole. For example, if the six percent limitation for an SPCOA is preempted, the effect of the build-out requirement for a COA would be diminished.

PURA95 §3.251(d) —PROHIBITION AGAINST MUNICIPALITIES ENTERING INTO THE TELECOMMUNICATIONS BUSINESS

PURA95 §3.251(d) states as follows:

A municipality may not receive a certificate of convenience and necessity, certificate of operating authority, or service provider certificate of operating authority under this Act. In addition, a municipality or municipal electric system may not offer for sale to the public, either directly or indirectly through a telecommunications provider, a service for which a certificate is required or any non-switched telecommunication service to be used to provide connections

³³ See, e.g., *Ibid.*, p. 10.

³⁴ See, e.g., CCBPol 96-14, "Comments of the Texas Office of Public Utility Counsel Concerning the Petitions for Preemption of Local Entry Barriers Pursuant to Section 253," *In the Matter of Pending Petitions for Declaratory Ruling Preempting Local Entry Barriers in Texas Law Pursuant to FTA Section 253* (July 3, 1996), pp. 6-9.

between customers' premises within the exchange or between a customer's premises and a long distance provider serving the exchange.

The difficult constitutional question is whether the federal government may preempt this provision by creating a general law prohibiting States from barring the entry of competitors into the local telecommunications market. A number of cities, such as San Antonio, Brenham, Fredericksburg, Georgetown, and La Grange, have argued that this prohibition has been preempted.³⁵ While the Commission did not file any pleadings at the FCC responding to the positions of these cities, the State of Texas has argued that no preemption has occurred.

³⁵ See, e.g., CCBPol 96-14, "Comments of the Cities of La Grange, Texas; Brenham, Texas; Georgetown, Texas; and Fredericksburg, Texas," *In the Matter of Petitions for Declaratory Ruling and/or Preemption of Texas Telecommunications Laws and/or Regulation* (July 3, 1996) for an argument that FTA96 preempts PURA95 §3.251(d). See also, Comments of the State of Texas on the Petition of ICG, CCBPol 96-14, *In the Matter of Petitions of Intelcom Group (U.S.A.), Inc. and ICG for Expedited Ruling and Consolidation* (July 8, 1996) arguing on a statutory basis that FTA96 does not preempt PURA95 §3.251(d).

CHAPTER 5

COMPETITIVE SAFEGUARDS

When crafting the Public Utility Regulatory Act of 1995 (PURA95), the Texas Legislature realized that not all participants would exert the same amount of power in the telecommunications market. Therefore, to ensure a level playing field among competitors and to promote an environment in which fair competition can flourish, the Legislature included in PURA95 a new Subtitle J, Competitive Safeguards. This Subtitle directs the Public Utility Commission of Texas (Commission or PUC) to develop rules and to review tariff filings (many of which result in contested cases) relating to the following topics: unbundling, resale, imputation, number portability, interconnection, expanded interconnection, costing and pricing, and infrastructure sharing.

These eight safeguards are interwoven to form the foundation for competition in the telecommunications market. Together, they break down economic and operational barriers that face new competitors. Unbundling allows existing incumbent local exchange carrier (ILEC) networks to be subdivided into basic elements that may be purchased by new entrants, combined with their own network elements, and then rebundled for sale to their customers. The resale provisions of PURA95 describe how bundled services may be leased from the ILEC and resold to a new entrant's customers. Imputation is used to prevent an ILEC from selling a service or function to a competitor at a price that is higher than the rate the ILEC implicitly includes in services it provides to its own retail customers. The use of number portability allows a consumer to retain her telephone number even if she changes to a new provider. Interconnection and expanded interconnection together allow companies to connect their networks and collocate telecommunications equipment in an economic manner to allow calls originating on one network to be terminated on the other. Costing and pricing provisions of PURA95 require rates to have a basis in cost to provide the service or unbundled element. Finally, infrastructure sharing requires a LEC to share public switched network infrastructure and technology with another LEC, if it lacks economies of scale or scope, to enable the requesting LEC to fulfill its carrier-of-last-resort obligations.

The Commission's work in implementing these safeguards, and how this work is affected by key provisions of the federal Telecommunications Act of 1996 (FTA96), are discussed in the following sections.

Unbundling

The ILEC network traditionally has been marketed as “bundled” services consisting of numerous network components. Emerging local service providers (LSPs), however, need to be able to purchase unbundled network components in order to provide services of their own. Section 3.452 of PURA95 addresses unbundling of local exchange carrier network and services. In general, the state statute requires the ILEC to unbundle its network to the extent ordered by the FCC.

The Commission implemented the provision regarding the unbundling of the ILEC network to the extent ordered by the FCC in Subst. R. §23.99. The rule requires ILECs to unbundle their network pursuant to current as well as future FCC requirements. The rule also sets costing and pricing standards for services unbundled in compliance with the rule. The cost standard is the long run incremental cost (LRIC). The rule applies initially to each ILEC serving one million or more access lines (Southwestern Bell Telephone Company (Southwestern Bell or SWB) and GTE Southwest). It applies upon a bona fide request to each ILEC that serves 31,000 or more access lines but fewer than one million access lines. In case of an ILEC that serves fewer than 31,000 access lines, it will apply upon a bona fide request after September 1, 1998.

FTA96 requires telecommunication carriers to negotiate access to unbundled network elements. PUC Subst. R. §23.99, as adopted, requires ILECs to unbundle network elements pursuant to current and future FCC requirements. Therefore, if the ILEC is ordered by the FCC to file interstate tariffs for unbundled services, then the ILEC must also file intrastate tariffs for the same or equivalent unbundled services. In an order issued in August 1996, the FCC established minimum unbundling requirements. Since the Texas unbundling rule mirrors FCC requirements, no conflicts between the regulations are anticipated. As unbundling standards are adopted by the FCC, the Texas unbundling rule may have to be amended to reflect any new unbundling requirements, or, alternatively, new FCC unbundling standards may be considered in the project to address further unbundling, Project No. 14959.

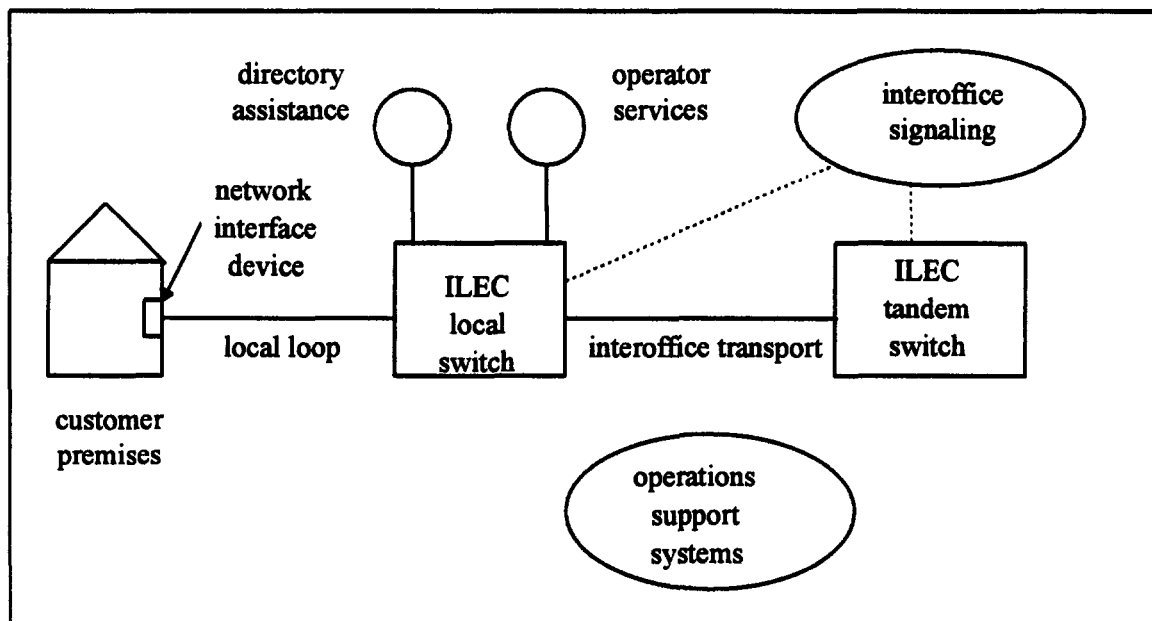
The FCC’s First Report and Order in CC Docket No. 96-98 identifies a minimum set of unbundled network elements that ILECs must provide to requesting telecommunications carriers, and specifies that states may require ILECs to provide additional unbundled network elements.³⁶ The minimum set of network elements the FCC identifies includes local loops, local and tandem switches, interoffice transmission facilities, network interface devices, signaling and call-related database facilities, operations support systems functions, and operator and directory assistance facilities. The FCC concludes that ILECs are required to provide access to network elements in a manner that allows requesting carriers to combine such elements as they choose, and that

³⁶ CC Docket 96-98, *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, ¶366.

ILECs may not impose restrictions upon the uses to which requesting carriers put such network elements.

In PUC Docket Nos. 16189, 16196, 16226, 16285, and 16290, the Commission served as arbitrators to resolve outstanding issues relating to interconnection between Southwestern Bell and several new competitors, including AT&T, MCI, MFS Communications, Teleport Communications Group, and American Communications Services, Inc. In its arbitration award, the Commissioners concluded that SWB must provide access to the following eight unbundled network elements without restriction: local loop; network interface devices; local switching; tandem switching; interoffice transport; signaling and call-related databases; operations support systems; and operator services and directory assistance. In addition, the Commission concluded that SWB must offer unbundled local loops both with and without automated testing and monitoring services. A graphical illustration of unbundling is shown in Figure 5.1.

Figure 5.1: Illustration of Unbundling

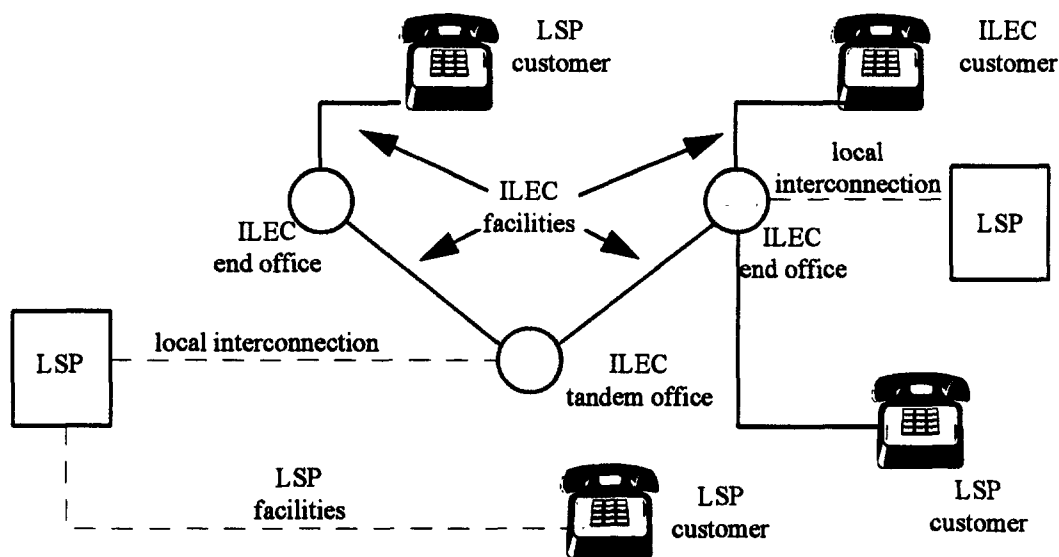


Interconnection

PURA95 §3.458 (f) permits the Commission to promulgate generic rules and set policies governing interconnection arrangements between telecommunication service providers. The Commission therefore adopted an interconnection rule, PUC Subst. R. 23.97, in April 1996, which addresses policies governing interconnection arrangements between telecommunication service providers certificated to provide local exchange service, basic local telecommunications service, or switched access service within the state.

The Texas interconnection rule is designed to facilitate negotiations without micromanaging the negotiations or competitive process. The rule sets forth principles of interconnection that are intended to serve as guidelines not only in the negotiating process but also in the arbitration process. These principles fall into four broad categories: 1) general; 2) technical; 3) billing arrangements; and 4) rates, terms, and conditions. The interconnection rule also establishes certain minimum arrangements that address issues such as the provision of repair services and 9-1-1 services; interoperability of operator services between networks; inclusion of listings in, and the publication and distribution of, white pages telephone directories; access to directory assistance databases; access to 800 and line information databases, Advanced Intelligent Network, Telecommunications Relay Service, and signaling protocols; number portability and intercept services; and handling of 900 and 976 numbers. Components of local interconnection architecture are illustrated in Figure 5.2.

Figure 5.2: Illustration of Local Interconnection



In its First Report and Order in CC Docket No. 96-98, the FCC concludes that the term “interconnection” as discussed in FTA96 §252(a)(2) refers only to the “physical linking of two networks for the mutual exchange of traffic.” The FCC identifies a minimum set of five “technically feasible” points at which incumbent LECs must provide interconnection: (a) the line side of the local switch (for example, at the main distribution frame); (2) the trunk side of a local switch; (3) the trunk interconnection points for a tandem switch; (4) central office cross-connect points; and (5) out-of-band signaling facilities, such as signaling transfer points, necessary to exchange traffic and access call-related databases. In addition, the points of access to unbundled elements are also technically feasible points of interconnection.

In the Arbitration dockets, the Commission addressed numerous technical details relating to methods of interconnection, terms and conditions, access to poles, conduits, and rights-of-way, and transport and termination of traffic.

Expanded Interconnection

Section 3.456(a) of PURA95 requires the Commission to adopt rules no later than September 1, 1996, for expanded interconnection. These rules must:

- (1) be consistent with the rules and regulations of the FCC relating to expanded interconnection;
- (2) treat intrastate private line services as special access service; and
- (3) provide that if an incumbent local exchange company is required to provide expanded interconnection to another local exchange company, the second local exchange company shall, in a like manner, provide expanded interconnection to the first company.

The Texas expanded interconnection rule, PUC Sub. R. §23.92, which was in effect prior to September 1, 1995, already complied with the requirements in (1) and (2) of §3.456(a). An amendment to PUC Sub. R. §23.92, which addressed the statutory requirement for reciprocal expanded interconnection as outlined under PURA95 §3.456(a)(3), was adopted in February 1996.

FTA96 mandates physical collocation of equipment necessary for interconnection or access to unbundled network elements unless the local exchange carrier demonstrates that physical collocation is not practical for technical reasons or because of space limitations, in which case the carrier may provide virtual collocation.

In its First Report and Order in CC Docket No. 96-98, the FCC adopts, with certain modifications, some of the physical and virtual collocation requirements it adopted earlier in its *Expanded Interconnection* proceeding.

Expanded Interconnection was not an issue addressed in the Commission's arbitration proceedings.

Resale

PURA95 contains important provisions concerning the resale of ILEC services and facilities. The first major provision is in §3.2532(d), which requires each ILEC to allow SPCOA holders to purchase for resale its monthly flat-rate local exchange telephone service at a five-percent discount to its tariffed rate. In addition, the ILEC must also allow

such resellers to purchase expanded local calling service and optional EAS, though at no discount.³⁷ The second major provision, contained in §3.453, requires Southwestern Bell and GTE to file usage sensitive loop resale tariffs, wherein the rate(s) must recover the loop's unseparated LRIC, and are available only to holders of a CCN, a COA, or an SPCOA.

Pursuant to the directives in PURA95, the Commission has been involved in two major cases relating to resale, Docket Nos. 14658³⁸ and 15688.³⁹ In Docket No. 14658, SWB and the Commission's General Counsel filed on June 21, 1996, a stipulation that would settle all outstanding issues; the Commission approved the application as revised by the parties' stipulation at its August 21, 1996, open meeting. In Docket No. 15688, GTE and the General Counsel filed an Interim Stipulation and Agreement and Revised Interim Tariffs, and the presiding Administrative Law Judge (ALJ) ordered GTE to file a status report on negotiations to resolve the remaining issues on December 17, 1996.

Following the ALJ's Proposal for Decision (PFD), issued on March 6, 1996, the Commission on April 10 issued an Order of Remand in Docket No. 14659,⁴⁰ in which the applications of SWB and GTE for usage sensitive loop resale tariffs pursuant to §3.453 are being addressed. This order served three purposes: (1) to state the Commission's decisions regarding certain principles integral to determining usage sensitive rates, terms, and conditions; (2) to specify the issues to be resolved on remand; and (3) to establish interim rates, terms, and conditions, subject to refund or surcharge without interest after a final order is issued. The hearing on remand in Docket No. 14659 has been set for December 3, 1996.

Pending the completion of Docket Nos. 14658, 15688, and 14659, the Commission has abated cases involving the flat-rate and/or usage sensitive loop resale tariff applications of the following ILECs: United, Centel, Lufkin-Conroe, and Sugar Land.

Whether any of the resale provisions of PURA95 are incompatible with the requirements of FTA96 has not yet been finally determined. However, as referenced in the Order on Certified Issues in Docket Nos. 15445⁴¹ and 15606,⁴² the April 10 Order on

³⁷ The five-percent discount does not apply to ILECs serving fewer than 31,000 access lines in Texas. Section 3.2532 also specifies several restrictions on the resale of these services by SPCOA holders.

³⁸ *Application of Southwestern Bell Telephone Company for Approval of the Local Access Service Tariff Including Resale Services Pursuant to PURA 1995 §3.2532.*

³⁹ *Application of GTE Southwest, Inc., and Contel of Texas, Inc., for Approval of Flat-Rated Local Exchange Resale Tariffs Pursuant to PURA 1995 §3.2532.*

⁴⁰ *Application of Southwestern Bell Telephone Company, GTE Southwest, Inc., and Contel of Texas, Inc., for Usage Sensitive Loop Tariffs Pursuant to PURA 1995 §3.453.*

⁴¹ *Application of AT&T Communications of the Southwest, Inc., for a Service Provider Certificate of Operating Authority.*

⁴² *Application of MCI Metro Access Transmission Services, Inc., for a Service Provider Certificate of Operating Authority.*

Certified Issues in Docket No. 14658, and the Commission's May 15, 1996 Comments to the FCC,⁴³ the Commission believes that important resale-related sections in PURA95, such as §§3.2531, 3.2532, and 3.453, may be reconciled with the resale-related sections in FTA96.⁴⁴ Specifically, in its Order Addressing Certified Issues in Docket No. 14658, the Commission found that §§251 and 252 of FTA96 allow states to prescribe additional alternatives under which new competitors may provide local service. Quoting from this Order, "a tariff approved in compliance with PURA95 can coexist with the arbitration and negotiation process contemplated under the [1996] Act."⁴⁵ Thus the limitations on the availability of flat-rated ILEC services for resale contained in PURA95 §3.2532 are not expressly preempted, as purchasing services from flat-rated resale tariffs is only one possible avenue a reseller may pursue as a means of providing local service. A COA holder, while unable to purchase services from such flat-rated resale tariffs, may still seek to obtain services for resale under terms developed using the negotiation or arbitration provisions of the 1996 Act. For that matter, an SPCOA holder also may seek different terms through these provisions.

In its First Report and Order, the FCC concludes that "[r]esale will be an important entry strategy both in the short term for many new entrants as they build out their own facilities and for small businesses that cannot afford to compete in the local exchange market by purchasing unbundled elements or by building their own networks." Section 251(c)(4) imposes on all ILECs the duty to offer for resale the same telecommunications services that it offers its own retail customers.

The resale portion of the Arbitration dockets related to services, terms, and conditions for resale; costing and pricing of resold services will be discussed below in the costing and pricing section of this chapter. Four resale issues were specifically addressed by the Arbitrators. The first issue was whether SWB should be able to impose limitations on resale based on its existing tariff limitations, such as the continuous property limitation for Plexar and the limitation on aggregation for purposes of the resale of volume discount offers. The Arbitrators ruled that the continuous property limitation was reasonable and could be retained by SWB, but that the aggregation limitation was unreasonable and would be prohibited. Any other restrictions, other than certain cross-class restrictions allowed by federal law, are presumed unreasonable. The second issue was whether current SWB customers with term contracts in place should be allowed a "fresh look" opportunity to shop for new contracts with new entrants. The Arbitrators ruled that a fresh look was not required. The third issue was whether SWB should have to provide competitors with information regarding new promotions, new product/service offerings,

⁴³ CC Docket No. 96-98, *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*. The FCC had adopted its Notice of Proposed Rulemaking on April 19, 1996.

⁴⁴ Among these sections are §251(c)(4), concerning the duty of ILECs to offer certain services for resale at wholesale rates, and associated provisions in §252.

⁴⁵ Order Addressing Certified Issues, Docket No. 14658, *Application of Southwestern Bell for Approval of the Local Access Service Tariff Including Resale Services Pursuant to Section 3.2532 of PURA*, April 10, 1996, p. 6.

changes in existing services, changes in calling scopes, and sale of exchanges within a certain time frame. The Arbitrators ruled that SWB must give notice at the time a Preliminary Rate Authority (PRA) is transmitted, or, in situations where a PRA is not issued, within 90 days (45 days for price changes) of the expected change in services or operations that would affect the local service provider. The fourth issue was whether SWB should be required to provide a wholesale discount to local service providers for promotions lasting 90 days or less. The Arbitrators ruled that, although SWB must offer the promotion for resale, it is not required to provide such promotions at a wholesale discount. Promotions lasting longer than 90 days must be offered for resale at a wholesale discount.

Number Portability

Number portability is a critical safeguard without which local exchange competition cannot be expected to proliferate. Pursuant to §3.455 of PURA95, the Commission must adopt guidelines governing telecommunications number portability and the assignment of telephone numbers in a competitively neutral manner. PURA95 mandates that Commission rules must be consistent with FCC regulations regarding number portability.

In addition, the statute required SWB and GTE to file tariffs for interim number portability (INP) before November 1, 1995.

Interim Number Portability: In response to the filing requirement, Southwestern Bell⁴⁶ and GTE Southwest and Contel of Texas,⁴⁷ submitted applications for INP tariffs. Both cases were contested and the State Office of Administrative Hearings conducted the hearings. A Proposal For Decision was brought before the Commission, and on August 1, 1996, the Commission issued an Order of Remand.

The Order of Remand contains the Commission's decisions with respect to certain principles integral to the determination of final rates, terms, and conditions for the delivery of INP services. The Order directed the Administrative Law Judge (ALJ) for the GTE/Contel case to consider issues related to INP cost recovery, switched access charge revenues and GTE's and Contel's cost studies. The Commission directed the ALJ in the SWB case to address issues related to SWB's optional two-way extended metropolitan service or extended area calling service additive, privacy, INP cost recovery, switched access charge revenues, and SWB's secondary service order charge. The Commission approved interim rates for INP services in both dockets on July 29, 1996. The interim rates will remain in effect until the Commission issues a final order.

⁴⁶ Docket No. 14940, *Application of Southwestern Bell Telephone Company for Interim Number Portability Pursuant to PURA 1995 §3.455.*

⁴⁷ Docket No. 14943, *Application of GTE Southwest and Contel of Texas, Inc. for Interim Number Portability Pursuant to PURA 1995 §3.455.*

The procedural schedule for the remanded cases has been suspended because parties have raised INP as a disputed issue in the interconnection arbitration hearings. Once the arbitration hearings are concluded, Docket Nos. 14940 and 14943 will reconvene.

In the SWB arbitration hearings, the Commissioners, as Arbitrators, determined that SWB and the new local service providers should absorb their own costs of providing interim number portability. In addition, they concluded that SWB and an LSP must implement a meet-point billing arrangement under which the forwarding carrier is allowed to retain any applicable terminating transport fees but no other portion of the switched access charges (such as Carrier Common Line and switching-related charges). Finally, the third issue resolved by the Commission dealt with whether SWB would be required to provide two additional types of number portability, Route Index-Portability Hub and Directory Number-Route Index, in addition to Direct Inward Dialing and Remote Call Forwarding for interim number portability service. The Arbitrators concluded that SWB was not required to provide these additional forms of interim number portability.

Permanent Number Portability: In June 1996 the FCC voted to require ILECs to begin "phased deployment" of permanent number portability in the 100 largest Metropolitan Statistical Areas (MSAs) by October 1, 1997, and to finish deployment in these markets by December 31, 1998; after 1998 each ILEC would be required to make number portability available in areas outside these 100 MSAs within six months of receiving a request from another carrier.

FTA96 states that it is the general duty of telecommunications carriers to provide number portability, where technically feasible, in accordance with requirements prescribed by the FCC. Further, all telecommunications carriers are required to bear the costs of establishing number portability. The FCC's Report and Order on number portability (CC Docket No. 95-116), released in July 1996, did not actually select a number portability plan, but specified a number of performance criteria an acceptable plan must satisfy. Among these are that the plan (i) not require end users to change their phone numbers, (ii) use numbering resources efficiently, (iii) not require carriers to rely on other carriers' facilities or services for proper call routing, and (iv) not cause any degradation of service quality when end users switch carriers. Also during July the FCC adopted a further notice of proposed rulemaking to request comments on suitable competitively neutral mechanisms for recovering the costs of implementing number portability.

The Texas Permanent Number Portability Working Group was formed as part of PUC Project No. 16091 to develop and implement a permanent number portability (PNP) solution for Texas. All carriers who expect to compete in the local market solution were invited to participate. The Working Group is formulating a limited liability corporation (LLC). The corporation will select the third party administrator that will design, implement, and operate the statewide PNP database solution. The selection of a third party PNP administrator is scheduled to occur early in 1997.

Costing and Pricing

Prior to the enactment of PURA95, the Commission already had adopted a rule, PUC Subst. R. §23.91, to address the methodology for long run incremental cost studies. Indeed, SWB and GTE had already begun filing cost studies for Commission review. Other ILECs may, at the company's option, adopt the SWB or GTE cost studies approved by the commission. The information gained in these cost studies will assist the Commission in fulfilling a requirement in PURA95 §3.547 to adopt a pricing rule by April 1, 1997. The pricing rule must ensure: (1) that prices for monopoly services remain affordable; (2) that prices for competitive services are not unreasonably preferential, prejudicial or discriminatory, that they are neither directly nor indirectly subsidized by noncompetitive services, and that they are not predatory or anticompetitive; and (3) that each service recovers the appropriate cost, including appropriate joint and common costs, of any and all facilities and functions used to provide that service.

The cost studies required by §3.457 of PURA95 and §23.91 of the Commission's rules are being performed pursuant to a schedule set forth in the companies' work plans, as approved by the Commission. The work plans contemplate that the statutory deadline for the cost studies will be met.

The pricing rule has been assigned Project No. 12771. The Commission plans to publish a proposed rule in December 1996 for comment by interested parties, and will adopt a rule by April 1, 1997.

The FCC concludes in its First Report and Order in CC Docket No. 96-98 that "the prices that new entrants pay for interconnection and unbundled elements should be based on the local telephone companies Total Service Long Run Incremental Cost of a particular network element," which the FCC calls "Total Element Long Run Incremental Cost" (TELRIC), plus a reasonable share of forward-looking joint and common costs. The pricing provisions in the FCC's First Report and Order have been stayed by the 8th Circuit Court of Appeals, pending appeal of these provisions of the order. See *Iowa Utilities Board v. FCC*, No. 96-3321 (8th Cir., October 15, 1996).

In the SWB arbitration dockets, the Commission arbitrated interim rates for loops, switching, signaling, transport, operations support systems, operator service systems, white pages directories, non-recurring costs, collocation, and administrative fees for approval of requests for pole attachments and use of conduit space. Interim rates set in this arbitration are shown in Table 5.1. For final rates, which will be determined at a later date, the Commission determined that a TELRIC-based pricing methodology, consistent with Subst. R. §23.91 and PURA95, will be used. In addition, the Commission set an avoided cost discount of 21.6 percent for resold services.

Table 5.1: Interim Rates for SWB Arbitration Dockets

Element	Interim Rate set by Arbitrators
<i>Loops</i>	
• 8 dB loops	\$15
• 5 dB loops	\$17
• BRI	\$38
• DS-1	\$105
• MDF to cage cross-connect	Use SWBT's rates
• Dark fiber (per ft, per mon.)	
♦ Buried 24-fiber	\$0.069476/cable, \$0.002895/fiber
♦ UG 24-fiber	\$0.072601/cable, \$0.003025/fiber
♦ Buried 36-fiber	\$0.103425/cable, \$0.002873/fiber
♦ UG 36-fiber	\$0.107864/cable, \$0.002996/fiber
♦ Conduit	\$0.016320
<i>Switching</i>	
• analog line-side port	\$1.95
• BRI line-side port	\$3.88
• PRI line-side port	\$115.73
• local switching	\$0.002903/min
• tandem switching	\$0.002453/min
<i>Transport</i>	Use FCC rates
<i>Signaling</i>	
• DS-0 links	\$41.04
• DS-1 links	\$32.13
• All other signaling equip.	Use SWBT's rates
<i>Operations Support Systems</i>	Use SWBT's rates
<i>Operator Service Systems</i>	Use SWBT's rates
<i>White Pages</i>	
• Cost to others for being in directory, per book copy	
♦ per copy	\$2.5487
♦ delivery cost, per copy	\$0.4985
♦ cost of listing updates, per copy	\$0.2541
♦ Total	\$3.3013
♦ Cost per page per year any one book	\$1938.7379
<i>Non-recurring costs</i>	Use SWBT's rates
<i>Collocation</i>	Use a simple average of collocation prices included in agreements TCG has reached with PacTel, BellSouth, and NYNEX.
<i>Fee for administrative approval of LSP requests for pole attachments and conduit space</i>	\$125

Imputation

Section 3.454 of PURA95 requires the Commission to impute the price of certain services under certain conditions. Generally, imputation is to be applied to prevent an ILEC from selling a service or function to another telecommunications utility at a price that is higher than the rate the ILEC implicitly includes in services it provides to its retail customers.⁴⁸ PURA95 also requires an ILEC to show that the price it charges for its retail service recovers the appropriately defined cost of providing the service, which cost is defined for imputation purposes as the sum of the following:

- (1) specifically tariffed premium rates for the noncompetitive services or service functions, or elements of these noncompetitive services or service functions (or their functional equivalent) that are used to provide the service;
- (2) the total service long run incremental costs of the competitive services or service functions that are used;
- (3) any costs, not otherwise reflected in Subdivision (1) or (2) of this subsection, that are specifically associated with the provision of the service or group of services; and
- (4) any cost or surcharge associated with an explicit subsidy that is applied to all providers of the service for the purpose of promoting universal service.

Project 14360 was a rulemaking initiated by the Commission to address imputation. The final version of the rule, adopted in an open meeting on November 7, 1996, as Substantive Rule §23.102, requires imputation of the price of a wholesale service in establishing the rates for a resale service if the retail service cannot be purchased at wholesale rates by a competitor and the wholesale service that is not competitively available is necessary for the competitor to provide its competing service. Basket I (Subtitle H) retail services or services whose rates are capped pursuant to Subtitle I of PURA95 are not subject to imputation except under limited conditions.

Imputation has been, and remains, an issue in some contested cases at the Commission, most notably Docket No. 14686, *Petitions of Southwestern Bell Telephone Company, et al. for Extended Area Service from the Texas City, Galveston, and Port Bolivar Exchanges to the Houston Exchange, et al.* In that case the Commission decided that switched access service is not necessary for a competitor to provide EAS service in competition with the ILEC. The Commission determined that telecommunications carriers (including IXCs) have the following alternative statutory means for providing EAS without acquiring switched access service: (1) as a telecommunications carrier negotiating

⁴⁸ PURA95 §3.454(b).

the purchase (for resale) of EAS at wholesale rates under FTA96 § 251(c)(4); (2) as a local service provider (LSP), negotiating the purchase (for resale) of EAS at wholesale rates under FTA96 § 251(c)(4); (3) as an LSP, negotiating interconnection, transportation, and termination agreements under FTA96 § 251(c)(2); and (4) as an SPCOA holder, purchasing (for resale) EAS at the tariffed rate under PURA95 § 3.2532(d)(2)(E). Therefore, by reference to PURA95 §3.454(c)(2), the Commission approved the five joint EAS petitions in Docket No. 14686 without requiring that the price of switched access service be imputed to the price of each EAS proposal.⁴⁹

Imputation also has been raised as an issue in pending Docket Nos. 15711, *Complaint of AT&T Communications of the Southwest, Inc. Against GTE Southwest, Inc., GTE TSI and GTE Card Service, Inc.*, and 14892, *Application of Southwestern Bell Telephone Company to Provide Three New Optional Calling Plans for Business Customers in the Long Distance Message Telecommunications Tariff Pursuant to Subst. R. §23.26*.

FTA96 contains two provisions regarding imputation. Section 272(e)(3) applies to a Bell Operating Company (BOC) subject to 47 U.S.C. §251(c) that provides services involving access to its own telephone exchange service and exchange access. Under this provision, a BOC must impute to itself an amount for access to its telephone exchange service and exchange access that is no less than the amount charged to any unaffiliated interexchange carriers. The second FTA96 imputation provision relates to pole attachments. Under FTA96 §224(g), a utility providing telecommunications services or cable service shall impute its costs of providing such services (and charge any affiliate, subsidiary, or associate company providing such services) an amount equal to the pole attachment rate for which such company would be liable under §224.

In the arbitration dockets, the Commission did not specifically impose any imputation requirements, but noted in the arbitration award that any imputation standards developed in the future should comport with the Commission's imputation rule and PURA95 §3.454.

Infrastructure Sharing

PURA95 §3.463 requires the Commission to prescribe rules requiring a LEC to share public switched network infrastructure and technology with a requesting LEC that lacks economies of scale or scope, to enable the requesting LEC to fulfill its carrier-of-last-resort obligations. The Commission has not yet initiated its rulemaking regarding infrastructure sharing.

Infrastructure sharing was not an issue in the Arbitration dockets.

⁴⁹ Commissioner Gee dissented, arguing that the ILECs should be required to prove imputation of costs.

Implications for Competition

The Arbitration hearings held at the Commission are the vehicles for hammering out the final details that will remove any remaining economic and operating entry barriers in the local exchange telecommunications market. Both the state and federal statutes establish a finite time period for new entrants and ILECs to resolve their differences to the extent necessary for the new entrants to start doing business in the state of Texas. For most of the major players in Texas, this time period will end in late 1996, thus allowing these new entrants to begin operating in early 1997. What is not clear, however, is how long it will take for a truly competitive environment to emerge in which numerous providers will be able to offer a variety of services and products at competitive prices. The Commission is confident, though, that implementation of these competitive safeguards has set the foundation to help allow a competitive market to develop.

CHAPTER 6

CONSUMER ISSUES

As lawmakers and policy makers throughout the nation adopt statutes and regulations that will open telecommunications markets to added competition, they must continue to focus on the effect of those changes on individual consumers. Both the Public Utility Regulatory Act of 1995 (PURA95) and the federal Telecommunications Act of 1996 (FTA96) include specific language on universal service and other consumer safeguards. This chapter examines competition's benefits to consumers, major issues of concern to consumers, consumer complaint programs, and existing and future consumer safeguards.

Consumer Benefits of Competition

A key question for any telecommunications reform is whether or not it helps the American people. Widespread competition prevents one company from holding too much power and market share. Therefore, effective competition is expected to provide consumers with increased deployment of new technology and new services, innovative packaging of services, increased choices in providers, and competitive prices for services.

NEW TECHNOLOGY AND SERVICES

The diffusion of competition is expected to result in the proliferation of new technology and telecommunications services. Since 1984, most consumers have become more sophisticated and knowledgeable about many types of consumer electronics products, including telecommunications equipment and services. Consumers today want services that are *better, faster, and cheaper*, and the forces of competition and technology are more likely to provide what they want than the monopolistic inertia of the past.

Competition has already prompted technological innovation in the area of end user equipment, including a wide variety of voice grade telephone instruments, cordless phones, pay telephones, customer PBX systems, and cellular telephones.

Within the past ten years, desktop and portable computers have become commonplace in homes and businesses. Based on this experience, innovation in technology is expected to accelerate, with continuing emphasis on advanced telecommunications services, including wireless and broadband services.

This advancement of technology, the decline of costs, and the increase in expectation and demand of customers all have combined to create a fertile marketplace for competition to flourish. Today's customers have demonstrated a great willingness to migrate toward services that are more cost-effective, more reliable, or more technically advanced than those that traditionally have been provided by incumbent carriers.

A *Boston Globe* article by Aaron Zitner, "10 Years Later, Bell's Breakup Impact Grows," relates that AT&T had little incentive after the divestiture to build a nationwide fiber-optic network. However, within a month after its competitor, Sprint, ran advertisements highlighting the clarity of Sprint's fiber-optic lines, AT&T reevaluated its decision and now has a fiber-optic network covering more than 35,000 miles.⁵⁰

Technological and new service benefits need not be restricted to customers residing in regions in which competition is the strongest. Consumer safeguards have been and will likely continue to be imposed on companies which serve both highly- and minimally-competitive markets. Lawmakers and regulators have recognized the importance of linking infrastructure development to competitive initiatives. Where facility-based competition exists or is likely to occur, incumbent carriers will most likely respond with service improvements. To ensure network modernization in areas where facility-based competition is not likely to occur due to market forces alone, companies electing price cap or incentive regulation are required to meet specific infrastructure modernization requirements for their entire service area. These requirements are expected to increase infrastructure capacity and deployment, advance technology development and improve the quality of service. Infrastructure issues are discussed in detail in Chapter 10 of this report.

PACKAGING OF SERVICES

Effective competition in the local exchange market will result in new ways to package both existing and new services. With sufficient competition, a consumer will be able to choose the type of calling plan as well as the network capabilities that are best suited to the consumer's need.

Examples of service packaging and marketing abound in competition for long distance services. Long distance companies frequently change their rates, modify calling plans, institute new plans and offer new promotions; a new innovation is rewarding long term customers with special discounts.⁵¹

⁵⁰ Aaron Zitner, "10 Years Later, Bell's Breakup Impact Grows," *Boston Globe*.

⁵¹ FCC Common Carrier Bureau, Industry Analysis Division, *Common Carrier Competition* (Spring 1996), Washington D.C., p. 2.

Competition already has resulted in marketing efforts by telecommunications carriers to offer a wide variety of bundled services. Customers can expect service providers to offer one-stop shopping with services that include cellular, paging, long distance, local exchange, video and data transmission. This bundling is already evident in service packaging approaches like MCI One™ and AT&T's True Value™ plan. Many customers appear to like the option of having one provider for a variety of services, and firms will attempt to capitalize on those opinions through attractive service packages.

CHOICE OF SERVICE PROVIDERS

To benefit directly from competition, the consumer must have a choice of competitive services and providers, and must have sufficient information to make an educated choice based on the individual's needs. In such a competitive environment, consumers must exercise good judgment to receive maximum benefits.

Due to the breakup of the Bell System and the tremendous growth of competition in the last decade, today's consumers face more telecommunications choices than ever before. This greater range of choice is indicated by the array of companies now providing telecommunications services:

- ◆ **local telephone companies**, which bill for local calls and most long distance calls, and connect long distance calls to long distance companies;
- ◆ **long distance companies** selected by the consumer;
- ◆ **operator service providers**, which carry calls and provide operator service for calls dialed from pay phones and phones in hotels and motels;
- ◆ **wireless service providers**, which offer cellular, PCS, and paging services;
- ◆ **billing agents**, which handle billing services for other companies;
- ◆ **equipment vendors**; and
- ◆ **pay phone premises owners**.

Even though these firms represent the proliferation of competitors in various telecommunications markets, the key to effective competition is the availability of a competitive choice of providers for a specific service in the geographic area in which the consumer is located. As an example, the Legislature's insistence on the provision of equal access to interexchange carriers is a critical step in ensuring that consumers have a reasonable choice of service providers. Data submitted by ILECs for this report indicate that many customers have access to well over 100 long-distance carriers from their local switching office. Even though the large firms display a sizable amount of market power, consumers do have a large number of carriers to choose from.

The increasing impact of consumer choice among service providers can be illustrated by examining the effects on the long distance market. As described in more detail in Chapter 8, AT&T's share of the overall market for interstate switched minutes dropped from over 80 percent in 1984 to approximately 55 percent due to competition by hundreds of competing interexchange carriers.⁵² Sprint holds approximately 9 percent and MCI holds 18 percent of the interstate market.

COMPETITIVE PRICING

Effective competition will drive prices toward cost. Consumers naturally hope that the direction in which prices are driven will be downward. In order to experience rate decreases, however, at least two conditions must exist (absent some external or regulatory agreements). First, as discussed in Chapter 3 and Appendix B, effective competition must exist in the market in which the consumer is purchasing a service. If an incumbent firm does not face substantial competition from new market entrants, price reductions for services may not be as great as originally anticipated. Second, to see a drop in price as a result of competition, the service must previously have been priced above its reasonable cost. With the complex rate designs of telecommunications services, and the controversial assignment of joint and common network costs, the relationship between price and cost is not crystal clear. Many ILECs argue that the price of local exchange telephone service, for example, is far below its cost. Absent regulatory or other intervention, rate decreases for those services are not certain to occur.

Federal Communications Commission (FCC) Chairman Reed Hundt told the 103rd Congress that long distance telephone rates have decreased by approximately fifty percent in real dollars since divestiture.⁵³ However, state regulators and consumer advocates suggest that much of the benefit of that reduction has been offset by the monthly Subscriber Line Charges paid by consumers.

Prior to 1993, Texas' PURA required AT&T, as a lightly regulated IXC, to pass through to customers any reductions in access charges by the ILECs. The 73rd Texas Legislature deregulated AT&T in 1993, and there are no longer any requirements on IXCs to pass through wholesale price reductions to customers. Critics of IXC deregulation argue that within the tight oligopoly that continues to exist among the IXCs, consumers have not received the benefits of competition to which they are entitled.

A study by the National Economic Research Associates of AT&T tariff filings since 1984 indicates that regulated competition in the interstate toll market, *per se*, has not yet produced the promised substantial consumer benefits.⁵⁴ The study asserts that AT&T

⁵² FCC, *Long Distance Market Shares: Fourth Quarter 1995*, pp. 4-5.

⁵³ Hearings on H.R. 3626 Before the Subcommittee on Telecommunications and Finance Committed on Energy and Commerce, 103d Congress, 2d Session 135 (1994).

⁵⁴ William E. Taylor and J. Douglas Zona, *An Analysis of the State of Competition in Long-Distance Telephone Markets*, National Economic Research Associates, (May 1995), p. 15.

has not passed access charge rate reductions through to their customers. However, the FCC has concluded that since 1990, AT&T appears to be passing on the access savings to the end user.⁵⁵

Chilton Research Services found in a 1996 survey that the public remains skeptical about the pricing benefits from competition in the market. About one-third of those surveyed (31 percent) anticipate increases in costs of local telephone service, nearly twice the number who think that the cost of local telephone service will go down (17 percent). More consumers also feel long distance telephone costs will go up (32 percent) instead of down (23 percent), with 42 percent saying they think long distance costs will remain the same.⁵⁶ Nor is the public convinced that competition will bring about better quality service, according to the same study. Approximately 25 percent of consumers surveyed believe that their long distance or local telephone service will improve. This survey concluded that consumers are concerned that the trend of large company mergers will result in higher prices for services that may not be better, and in fact may be worse, than current services.

Consumer Concerns

INFORMED CHOICE IN THE INFORMATION AGE

With the growth in competitive choice, many new rate and discount packages undoubtedly will be offered to subscribers through various advertisements and promotions. This information overload may prove overwhelming and frustrating to some consumers. The public must have an idea about how all these service providers perform individually and as a group to make an informed choice to receive better services and products at lower prices.

State and federal lawmakers and regulators have adopted safeguards designed to ensure that the consumer is sufficiently informed to take advantage of competitive choices. Examples of consumer information programs include brochures, consumer alerts, and informational postings on payphones.

The FCC and the Public Utility Commission of Texas (PUC or Commission) are utilizing the information highway to communicate with consumers. Both organizations have access to the Internet, and regularly post information on their home pages, at the following addresses:

⁵⁵ FCC Common Carrier Bureau, Industry Analysis Division, *Reference Book: Rates, Price Indexes, and Household Expenditures for Telephone Service* (November 1995), Appendix 11.

⁵⁶ Chilton Research Services, *New Telecommunications Bill Not Likely to Reduce Costs of Services*, February 13, 1996, p. 1.

PUC <http://www.puc.state.tx.us>

FCC <http://www.fcc.gov>

Other groups, like the Telecommunications Research and Action Center (TRAC), can help consumers sort through the confusing claims of advertising. TRAC publishes *Tele-Tips*, A Long Distance Comparison for Residential Rates. Table 6.1 illustrates the type of information available to consumers through TRAC.

Table 6.1: Long Distance Rate Comparison Chart

TRAC's Long Distance Comparison Chart (September 1996) Rates for 6 Calls Totaling 53 Minutes			
Standard Rate Plans	Average Daily Use*	Heavy Day Use**	Heavy Night and Weekend Use***
AT&T Dial - 1	\$10.12	\$9.90	\$10.67
Frontier Dial - 1	\$10.12	\$10.01	\$11.42
LCI Basic	\$10.12	\$9.90	\$11.42
LDDS WorldCom MTS	\$9.67	\$9.24	\$10.29
Matrix SmartWorld Basic	\$8.12	\$7.95	\$8.56
MCI Dial - 1	\$10.06	\$9.84	\$10.61
Sprint Standard	\$10.12	\$10.01	\$11.42

- Notes: *
- Average Daily Use consists of 25 percent of calls made during the daytime hours, 45 percent made during the evening and 30 percent made during night/weekend hours.
 - ** Heavy Day Use consists of 50 percent of calls made during the day, 20 percent made during the evening hours and 30 percent made during the night weekend hours. Includes 6 calls totaling 43 minutes.
 - *** Heavy Night and Weekend Use consists of five percent of calls made during the daytime hours, 25 percent made during the evening hours and 70 percent made during the night and weekend hours. Includes 6 calls totaling 63 minutes.

TELECOMMUNICATIONS FRAUD AND CONSUMER ABUSE

Slamming

"Slamming" is a term used to describe the practice of changing a consumer's long-distance carrier without the customer's knowledge or consent. A long-distance company may switch a customer to its network without the customer's authorization or with misleading authorization forms. Various schemes have been used to switch customers, such as misleading telemarketing pitches and contest entries with fine print. In some instances, a company changes a customer to its network through misleading sales schemes without ever attempting to obtain written consent. A slammed customer may lose important service features, may get lower quality service, or may be charged higher rates.⁵⁷ More importantly, slamming preempts the consumer's freedom of choice.

The PUC received 400 slamming complaints during fiscal year 1996. Based on the level of complaints at the PUC, the FCC, the Better Business Bureau, and the Attorney General's office, slamming complaints continue to increase. It is anticipated that with the arrival of competition in local service market, there will be a corresponding onset of slamming instances when consumers begin to exercise freedom of choice among local telephone service providers.

The FCC's rules require a long distance company to obtain a customer's authorization in order to change his or her long distance service. New FCC slamming rules require that letters of authorization be separate from inducements such as prizes and contests. The letter of authorization must be strictly limited to authorizing a change in long-distance carrier and it must be clearly identified as a letter of authorization authorizing the change.⁵⁸

The FCC offers the following advice to a consumer who experiences telephone slamming:⁵⁹

- ◆ Call the local telephone company. Tell the local company that you did not order service from the new long distance company and that you would like to be reconnected to your previously-chosen long distance company.
- ◆ Call the long distance company that slammed you, and let it know that you will only pay the charges your preferred carrier would have imposed. If the slamming carrier does not drop any additional charges, you should contact the FCC and register your complaint.

⁵⁷ FCC's Common Carrier Bureau, *Common Carrier Scorecard*, (Fall 1995), p. 4.

⁵⁸ FCC's Common Carrier Bureau, *Consumer Alert: Telephone Slamming Factsheet* (February 1996), p. 1.

⁵⁹ *Ibid.*

- ◆ Next, call the long distance company from which you were switched and report that you were switched without permission. You should ask to be switched back to your previously chosen company at no charge.
- ◆ Finally, if you are unable to resolve the complaint with the slamming company, you can file a complaint with the FCC.

The FCC vigorously enforces its rules that prohibit slamming. The rules protect consumers who receive higher bills as a result of being slammed. These consumers are required to pay only the toll charges they would have paid to their original long-distance carrier. These rules also work in protecting consumers without limiting their choices or unduly restricting the means that long distance companies use to reach consumers.

Slamming, like other billing problems, presents a particularly difficult situation because long distance is typically billed through the local phone company. AT&T currently bills its customers separately for long distance charges in Texas, but most long-distance carriers continue to bill through local exchange company. This third-party relationship can present difficulties for a customer attempting to resolve disputes.

Billing Irregularities

Complaints regarding billing abuse center on the ability of carriers to use verbal solicitation and consumer agreements for services. Many customers complain that no service ought to be billed on their local phone bill without a written request from the customer or a verbal request directly from the customer to the LEC. Unlike any other consumer good, the current process gives competitive companies the authority to directly contact the LEC and request added services on behalf of a customer through a billing and collection agreement with the LEC. In many cases this is done without the knowledge of the customer. And in many of these cases, the billing is only corrected if the customer notices the billing problem and contacts the company, the LEC, and the Commission in writing. Unfortunately, some consumers decide the cost in time and effort is not worth the benefit, and the situation is never resolved.

One recent example occurred in the case of a long distance company that inappropriately billed non-customers for its payments to the Telecommunications Infrastructure Fund (TIF). The charges showed up on consumer bills as a \$1.35 obligation even though these customers had a different long-distance carrier. Many customers who called to complain could not reach the long distance company through the listed 800 number. The company has indicated that any customer that writes to the company will be credited for the accidental charge. However, many people will weigh the cost benefit of writing to the company and choose not to pursue it, *if they noticed the charge at all*. With extremely limited jurisdiction over non-dominant long-distance carriers, the PUC is not able to fully investigate or seek remedies from such carriers.

"I Don't Care" and Other Schemes

Another recent consumer issue surrounds certain practices of some seemingly deceptive operator service providers (OSPs). Many consumers who use a payphone seek assistance from the ILEC operator (usually by first dialing "0") to make a long-distance call. The large majority of these callers specify a long-distance company to carry the call; the operator then transfers the caller to the designated carrier's network. However, about 3 percent of the calls for operator assistance are placed by people who are unable to state a preferred long-distance company to carry the call. When asked by the ILEC operator to express a preference, the customer may say something like "It doesn't matter" or "I don't care."

An entrepreneurial firm, KT&T Communications Inc., established a number of subsidiaries with business names such as "It Doesn't Matter," "I Don't Care," "I Don't Know," "Who Ever," "Any One Is Okay," and "Bay TNT Network" (evidently a word-play on AT&T). If the KT&T subsidiary with the matching name is on the ILEC operator's "0-" transfer list of eligible carriers, the ILEC operator will then transfer the call to that subsidiary.⁶⁰

KT&T Communications Inc. is registered with the PUC and appears to be operating in a manner consistent with regulatory statutes and rules. The company's rates, while higher than those of the largest IXC's, seem to be lower than those of some of the OSPs specializing in providing operator services to telephones used by the public. (An Associated Press writer reported the following recent charges for three-minute calls from Houston to Dallas: AT&T, \$4.63; KT&T, \$7.64; and CNSI Inc., \$9.70.)⁶¹ Despite the appearance of deceptive tactics, the Commission has received very few complaints about charges by these companies; in contrast, it has received hundreds of complaints in the last year regarding charges by OSPs presubscribed (in contracts with providers of pay telephone service) to carry long-distance calls from pay telephones.

The PUC requires OSPs to abide by certain operating requirements, pertaining to the provision of rate and other information and access to other carriers. However, it has no authority to regulate the rates charged by OSPs (or any other non-dominant telecommunications utilities), other than to require statewide average rates.

Clearly, consumers must be cautious in making long-distance calls from public telephones. To avoid excessive charges, each person needs to be aware of the company that normally carries his or her long-distance calls, and how to access their preferred long-distance company when away from home.

⁶⁰ Mike Drago (Associated Press), "You Don't Care? Maybe You Really Do," *Dallas Morning News*, July 12, 1996, p. 1D.

⁶¹ *Ibid.*

Area Code Issues

New area codes are becoming a fact of life in the United States, and in Texas have become a major consumer issue and a competitive issue as well. New companies providing cellular phones, pager services, and burglar alarm systems are using telephone lines to serve a growing customer base. In addition, the need for new telephone numbers has grown dramatically with increased use of computer modems, fax machines and modems, and multiple residential lines. With the passage of FTA96, local telephone competition is being encouraged throughout the country. As competition gets underway, new providers are requesting substantial blocks of numbers to provide local telephone service. All in all, there has been an explosive demand for new numbers, especially new prefixes, called NXXs by the industry, and referring to the first three digits of the seven-digit phone number. The assignment of NXXs drives the exhaustion of the area code, called NPA codes for numbering plan area.

Since January 1995, more than 15 new area codes have been implemented across the country as part of the North American Numbering Plan (NANP), increasing the number of area codes from 149 to 164. Another 52 area codes throughout the country are projected to be implemented before the year 2000.⁶² Interestingly, only 24 new area codes were implemented in the previous 10-year period between 1984 and 1994.

At the beginning of 1995, Texas had nine area codes, but change was underway. Two new area codes were implemented in 1996 in Texas' two largest metropolitan areas, Dallas and Houston. Four more new area codes are scheduled to be implemented in 1997, two in the 210/San Antonio area and two more in the 817/Fort Worth area. Also in 1997, the Commission will begin planning for additional area codes for the Dallas and Houston areas.

Each area code has about 792 usable prefixes. Numbers like 800, 888, 911, 411, and others are omitted from all area code prefix assignments. Each prefix has 10,000 unique telephone numbers. These NXXs are assigned to telephone companies or to firms who offer services that use telephone lines, such as cellular phones, pager companies and more. On a technical level, calls dialed to these NXXs are routed to telephone central offices which serve specific geographic locations. As a result, many telephone companies may have several NXXs in a metropolitan area in order to geographically serve their customers. With the demand for NXXs by the growing population of telephone service providers, area codes all over the country are becoming exhausted.

In addition, competitive providers and technological products play a significant part in number exhaustion. A paging company, a cellular service provider, or another telecommunications entity may receive its own NXX, even though it serves far fewer than the 10,000 numbers available within the dialing prefix. High-tech consumers are no longer limited to one telephone number, but often have many numbers assigned for their facsimile

⁶² 1995 COCUS report, Bellcore.

machine, computer modem, pager, cellular telephone, and multiple lines for their children. These demands have multiplied in recent years, contributing to the exhaustion of the numbers available for assignment within area codes.

Area codes were first devised by the old Bell system in 1947, and 86 NPAs were implemented in 1951. The original numbering system required a middle digit of 0 or 1. Omitting special numbers, the original group of area codes provided 144 three-digit numbers. The last of the original codes, 610, was assigned to Pennsylvania in 1993. In the meantime a new format was being developed using the digits 2 through 9 to increase the pool of available NPAs to 640. The expanded codes provided more than 5 billion new numbers. Area code assignments were made by the Bell system, and after divestiture, Bellcore continued its role as NANP administrator. Now, just three years after the pool of area code numbers was more than tripled, officials are worried that 640 NPAs will not be enough for the next 20 years, given the anticipated growth of the industry.

When FTA96 opened the market to competition, the issue of area code assignment was also addressed. In the Second Report and Order in its interconnection proceeding, the FCC recognized the necessity of designating an impartial number plan administrator. "In enacting the 1996 Act, Congress also recognized that ensuring fair and impartial access to numbering resources is a critical component of encouraging a robustly competitive telecommunications market in the United States."⁶³ The order goes on to say that the Act, Section 251(e)(1) "confers upon the Commission [FCC] exclusive jurisdiction over those portions of the North American Numbering Plan that pertain to the United States," but states that "nothing in this paragraph shall preclude the Commission from delegating to state commissions or other entities all or any portion of such jurisdiction."⁶⁴ The report also says that state commissions may continue to determine area code implementation as long as they follow FCC guidelines.

Essentially what happened in Dallas and Houston is that subscribers as well as decision-makers were victims of the "old world" of area code assignments when the new world was dawning. Until FTA96 was signed into law on February 8, 1996, area codes were assigned one at a time, and most offered relief for four or more years. The Dallas and Houston decision was made on February 9, 1996. New guidelines were submitted to the FCC just a month later by an industry working group, the Industry Carriers Compatibility Forum. These guidelines provided assumptions, constraints and the planning principles for NPA relief efforts. One of the specific recommendations was that "customers who undergo number changes shall not be required to change again for a period of 8 to 10 years."⁶⁵ As a result, the group sponsored a paradigm change that area code relief could include more than one new area code to support long-term relief.

⁶³ Second Report and Order, CC Docket No. 96-98, *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, FCC 96-333, p. 111.

⁶⁴ *Ibid.*, p. 114.

⁶⁵ ICCF NPA Code Relief Planning Guidelines, p. 2

According to revised estimates by the numbering plan administrator, the two-way donut-shaped geographic splits recently implemented in Dallas and Houston offer only about two years of relief, due in large part to the fact that both communities had reached area code exhaustion before implementation of the new codes. In Houston, the new code (281) was implemented by SWB first in March of 1995 as an overlay, and then later reversed in the February 9, 1996 decision by the Commission to a geographic split. The result was that more than 100 NXXs were assigned to new carriers in the new 281 code after exhaustion of 713 in early 1996. Dallas' 214 code was also exhausted, but with far fewer duplicated prefixes in its new code (972) at the September 14, 1996 implementation. Recognizing that officials begin planning for new area codes before 600 NXXs are assigned, all four Dallas and Houston codes have the potential for exhaustion before the end of 1998. Some customers, many of whom are businesses with substantial investment in advertising, paper systems, and telephone number identification, may face several area code changes within a three-year period.

As new competitors come into the market, the demand for new NXXs is certain to increase dramatically. Obviously, most new providers want to develop their markets in metropolitan areas where they can capture more customers. The very areas which have become exhausted and split will be hit hardest by competitors' requests for new NXXs to fill their needs. Interim number portability will help to a degree, where customers can take "their" telephone numbers with them as they move to a new competitor. But this will not greatly relieve the demand for NXXs. Until some method is found to break up the blocks of 10,000 numbers, the NXX crunch will continue.

Among the solutions, alternative relief methods may be considered instead of the traditional geographic split implementation. In the boundary realignment method, an NPA requiring relief could use NXXs in an adjacent NPA. The boundary is moved so that the new NXXs can serve the exhausting area causing it to shrink and the adjacent NPA to expand. The overlay method first considered as the relief plan for both Dallas and Houston is one in which the new NPA is placed on top of the old area code, using the same geographic boundaries. At the time that Texas' decision on Dallas and Houston was rendered, no overlays were in use in the country. The overlay plan necessitates ten-digit dialing, but allows all current customers to keep their complete ten-digit telephone number. The overlay proposal was opposed in Texas as being anti-competitive, since all new businesses and new telecommunications companies would be assigned NXXs from the new code.

One of the results of the Dallas and Houston cases was a commission decision to allow remote call forwarding for a period of two years after permissive dialing had ended. Permissive dialing is the interim period in area code implementation when customers with the new code can still be reached using the old code as well. In other words, customers actually have two ten-digit numbers during this period. Many customers who had campaigned hard to have an overlay and keep their original phone numbers were delighted at the prospect of keeping the original area code for two more years at the modest costs of telebranch service (about \$30 per month for businesses; \$4 per month for residential

customers). It quickly became apparent that if just one customer per NXX chose to have remote call forwarding, the original area codes for both Dallas and Houston would be exhausted at the end of permissive dialing. This is due to the fact that no NXX can be assigned if any of the 10,000 numbers are being used. The solution offered to commissioners by an industry working group brought together by commission staff was to eliminate the remote call forwarding offer, and extend permissive dialing for one more month. Following would be a 60-day intercept/call referral announcement period.

What is the future of area codes for Texas? Southwestern Bell officials say that charts with exhaust dates that were constructed just six months ago are already outdated. New, closer exhaust dates are now being established for all codes in Texas. Many other high-growth parts of the country are undergoing similar area code evaluations. Southwestern Bell estimated that in the next two years, it will implement 17 new area codes in its five-state area. And that doesn't count Dallas and Houston, now expected to exhaust all four area codes before 1999. Solutions are being sought, including permanent number portability, breaking up of the NXX blocks of numbers, other Central Office switching methodology, adding another digit to the NXX or the area code, and more. The current group of 640 codes, which once seemed ample for many decades, is suddenly giving officials at Bellcore and the FCC cause for concern, because with current area code demand, those numbers may be exhausted within 25 years.

Just in the last few years, several things have caused people to change their paradigm about telephones. Today most people have at least three telephone numbers: their home, their work, their work fax. For many people, the list is much longer, including a pager, a cellular phone, a computer modum or second home number, a number for other family members at home, a burglar alarm for home security, and more. And most people think of their telephone number as a ten-digit number including its area code. Area codes have been considered geographic identifiers, but today they have become part of a regular telephone number and are fast losing their geographic identity. As a consumer issue, area codes have become an important component of identification, particularly with our global economy. As a competitive issue, these codes provide new blocks of numbers for new local providers. Area code changes have generated more public comment than any other single issue in the history of the PUC. Many more new area codes will be implemented before area codes in Texas and throughout the country reach another plateau of long-range relief.

Caller Identification

Caller Identification (Caller ID) is a service offered by ILECs that transmits the caller's telephone number, and potentially additional information, to the party being called. Beginning with the initial approval of Caller ID service in 1992, the PUC recognized the potential public impact of the privacy issues surrounding this service. PURA §3.302 and §3.3025 address Caller ID issues and the formation of the advisory panel described below. PURA SUBST. R. §23.57 addresses customer privacy issues; SUBST. R. §23.57(g) specifically addresses Caller ID issues and blocking plans.

PURA95 mandated the establishment of the PUC's **Advisory Panel on Caller ID and Consumer Education**. This panel consists of three appointed volunteers: Gary Chapman, of Austin; Peter Slot, of Houston; and Teresa Staats, of Wichita Falls. The purpose of the panel is to advise the PUC on needs for consumer education about Caller ID and related telephone services, such as call and line blocking and "call-back" service. The panel members have collected consumer education material from every telephone company operating in Texas.⁶⁶

The panel has met several times over the course of 1995-96 and delivered its first oral report to the PUC on August 7, 1996. The panel presented information and recommendations to the PUC on four primary issues: consumer complaints about Caller ID; handling of line blocking requests; establishment of focus groups on Caller ID and consumer knowledge, and plans for a long-term Texas forum on privacy issues.

The panel reviewed consumer complaints about Caller ID that had been received by the staff of the PUC. There were three common complaints: customers who wanted Caller ID but could not get it; consumers who had their lines blocked but then moved, discovering that the blocking did not apply automatically to their new telephone service; and the situation in which a blocked line could be "called back" when the person called used the *-69 (star-69) keypad combination. This last case creates a problem for some customers who have blocked their lines, such as attorneys, therapists, counselors, police, and others.

Currently, the statute regarding Caller ID blocking requests requires consumers who want free per-line blocking to send a written request to the PUC. This written request is then passed on to a post office box maintained by the ILEC that serves the customer. PUC staffers do not examine these written requests -- they are merely passed on to the appropriate ILEC, which is then expected to block the telephone line of the requesting customer. The panel agreed that blocking requests should be handled by the ILEC, not by the PUC.

⁶⁶ Caller ID Consumer Education Panel, *Annual Report*, August 1996.

The Caller ID panel feels that to make recommendations about consumer education on Caller ID, more basic knowledge is required about what Texas consumers understand about the issue. To gather data about consumer knowledge, the panel is recommending a series of focus groups of randomly selected but representative citizens in Texas who will be asked what they know about Caller ID and how effective consumer education has been so far. The results will be shared with the public and with telephone industry officials.

Panel members agreed that there is a need in the State of Texas for an ongoing public forum on issues of privacy and new technologies. Caller ID is just the tip of the proverbial iceberg when it comes to technologies that change the privacy environment for citizens of Texas. As we venture further into the "information age," consumers will be faced with increasing choices and increasing complexity in balancing privacy with new services and technologies. The Caller ID panel recommends that the State of Texas consider setting up a permanent, ongoing Privacy Commission. This commission would be charged with surveying privacy protections in the state, acting as a clearinghouse for information about privacy controversies, and advising the state government and other governmental units about how to balance privacy with new technologies and services.

Consumer Complaint Programs

THE FCC'S COMPLAINT PROCESS

The FCC receives many types of complaints about the rates and practices of common carriers from consumers. The Informal Complaints and Public Inquiries Branch of the Common Carrier Bureau's Enforcement Division helps consumers resolve problems with carriers.⁶⁷ The top three complaint categories are 800 information services, operator service practices, and the unauthorized conversion of long distance service -- a practice known as "slamming."

800 Information Service The largest complaint category in 1994 was the use of 800 numbers for information services. Information services are programs that give the caller specific information (such as sports scores) or provide entertainment (such as chat lines). Some companies used 800 numbers and levied charges for information services even though FCC regulations generally require that interstate information services be offered on 900 numbers. New FCC rules prohibit the use of 800 numbers to provide information services except when a consumer has entered into a contractual agreement to

⁶⁷ FCC's Common Carrier Bureau, *Common Carrier Scorecard*, Fall 1995, p. 1.

obtain and be charged for such a service.⁶⁸ This rule change significantly decreased the number of complaints in this area in 1995.

Operator Service Practices were the second largest complaint category in 1994. Customers receiving collect calls and customers placing calls away from home often do not realize which telephone company they are using. Customers using calling cards provided by their local telephone company may wrongly assume that their telephone company, rather than an operator service provider, sets charges when the card is used away from home. Operator service complaints usually cite poor call quality, excessive rates, and bills for unanswered and uncompleted calls.

The number of *slamming* complaints to the FCC more than tripled over an eighteen-month period from 1994-1995. By early 1995, slamming took the lead as the common carrier practice generating the most complaints. In response, the FCC, on June 13, 1995, adopted new rules to reduce slamming. The new rules are specifically directed at carriers that use contests or special events to deceptively market long distance services.

THE TEXAS PUC'S COMPLAINT PROCESS

The PUC receives a variety of complaints concerning telephone service. Regulated carriers are required to respond to complaints; however, many of these complaints relate to services that are not directly regulated by the PUC. Even though non-dominant long-distance carriers are minimally regulated by the PUC, many customers contact the PUC for assistance because billings are typically included in the local phone bill. The following categories outline the most frequent types of consumer complaints received by the Consumer Affairs Division of the PUC.

1. Billing

Billing problems are the biggest area of consumer concern reported to the PUC. Although many complaints relate to local billing issues, more than half of the billing complaints received by the Commission relate to long distance and enhanced services (such as voice mail). The customer is billed on the local phone bill, but must resolve the billing dispute with the provider directly. Customers can be disconnected for non-payment of long-distance service if they have not resolved their complaint within 60

Top Five Types of Complaints Received by the PUC's Consumer Affairs Division

1. Billing
2. Customer Service
3. Slamming
4. Quality of Service
5. Pay Telephones

⁶⁸ *Ibid.*, p. 4.

days. Many customers find they are unable to reach the long-distance or voice-mail company or do not receive a response to letters.

The ability to bill through the LEC's local phone bill provides a convenient payment mechanism for customers, but also opens the door for fraudulent billing. Slamming, the unauthorized switching of a long-distance carrier, is just one example of telephone billing problems and is addressed separately below. The Commission also has seen an increase in the number of billing complaints related to enhanced services that often were never ordered.

2. Customer Service

Customer service is the second largest complaint category at the PUC. The Commission has rules and standards covering many consumer protection and service quality issues, such as billing, deposits, and service disconnection. The PUC currently is evaluating whether similar standards ought to be applied to new service providers. Companies in a fully competitive market will seek to maintain high levels of customer service to attract and retain customers. In transition, however, many parties advocate consumer safeguards that include appropriate customer service standards.

3. Slamming

Slamming, discussed in an earlier section in this chapter, remains a difficult dilemma for policy makers. The PUC received 400 slamming complaints during fiscal year 1996. Based on the level of complaints at the PUC, the FCC, the Better Business Bureau, and the Attorney General's office, slamming complaints continue to increase.

4. Quality of Service

Along with customer service, the complaints related to quality of service also are high on the list. The Commission has some specific guidelines in place for quality of service and the provision of service. For example, SUBST. R. 23.61 (e)(2) requires local exchange companies to complete 95 percent of all requests for primary installations within five working days. This type of explicit guideline provides the company with a specific goal and gives the PUC a standard by which to judge compliance.

5. Pay Telephones and Operator Service Providers

Most pay telephone complaints relate to charges for calls placed from pay telephones. Many customers complain of rates that significantly exceed the rates they pay from their home telephone. While PURA95 established rate caps for pay telephones, these caps may not apply to the operator service providers that provide long distance services and billing for pay telephone owners.

Existing and Future Consumer Safeguards

EXISTING CONSUMER SAFEGUARDS

The Commission anticipates that as the competitive market for telecommunications services continues to expand, the above complaint categories will also increase. The PUC has existing consumer safeguards that apply to dominant carriers and other providers where PURA95 has bestowed explicit authority. The PUC has recently created the Consumer Protection Enforcement Section to focus additional attention on consumer issues and compliance with PUC requirements.

CONSUMER SAFEGUARDS IN THE FUTURE

Changes in state and federal law have set the stage for open competition in the local telephone service market. Many industry analysts expect to see multiple service providers operational in many Texas metropolitan areas in the foreseeable future. Although regulatory changes have planted the seeds of competition, a fully competitive market may take several years to develop.

As the market for telephone services becomes more competitive, customers will have more choices of service providers, and the need for many forms of rate regulation will diminish. The transition to competition, however, does not diminish the need for protection against unscrupulous business practices or the need for high-quality telecommunications services. In fact, as the state's economy relies more and more on the reliable delivery of telecommunications services, customer safeguards and quality of service assurances become increasingly important.

In order to protect customers and maintain service quality, the Commission must have clear statutory authority over telecommunications carriers who fail to measure up to acceptable standards. Currently, the Commission's jurisdiction over "non-dominant" carriers is too limited to be effective in preventing abuse of customers. It is not necessary for the Commission to have its full traditional regulatory jurisdiction over a carrier in order to ensure fair business practices and quality service. Rather, the Commission's jurisdiction can be limited to customer service and service quality issues.

The new regulatory environment following the passage of FTA96 and pro-local competitive state statutes is transforming the role of state and federal regulators. Regulators must meet the challenge of their new responsibilities to educate consumers about their rights and implement consumer safeguards to protect the consumer against unfair practices.

CHAPTER 7

OTHER COMPETITIVE ISSUES

Promoting Fair Trade: Preventing Anti-competitive Behavior and Other Unfair Practices

As the structure of the telecommunications industry changes, traditional ways of looking at market power for local services must also change. For example, a local exchange company's (LEC's) ability to dominate a particular market, under traditional rate of return regulation, was of little concern because the Commission regulated the prices that the dominant LEC could charge. The LECs regulated by the Commission were assumed to require a high degree of market concentration to realize economies of scale and scope. As markets became more concentrated, the Commission assumed that costs per unit output would decrease, and that such decreased costs would help keep prices for utility services affordable.

These assumptions created a mindset that disregarded market concentration in local telecommunications markets. The telecommunications industry, however, has changed and will continue to change. This section focuses on a number of issues, including antitrust principles, PURA95 provisions that restrict anti-competitive behavior and other unfair practices, and the potential role of the Commission in these areas.

Antitrust Principles and Their Impact on the Potential for Abuse of Market Power

Proponents of competition argue that competition in local telephony should lead to lower prices. However, if LECs have the ability to extract a price higher than would exist in a competitive market, the potential for lower prices could be lost, and higher prices could result. It has been argued by some authors that market concentration has led to prices above competitive levels in the United States long-distance telecommunications market.⁶⁹ In a concentrated market, an unregulated firm providing local service will

⁶⁹ See, e.g., Taylor and Zona, *op. cit.*, p. 27. The article argues that the divergence in price and cost reductions along with "AT&T's firm-specific price elasticity of demand suggests pricing behavior inconsistent with a price-taking firm in a competitive market." It has also been suggested that market concentration in the electric industry has led to above market prices in Britain after privatization and will likely lead to above-market prices under Sweden's current electric industry restructuring plan. See, e.g., Bo Andersson and Lars Bergman, "Market Structure and the Price of Electricity: an Ex

produce a lower quantity of output at prices exceeding those charged in a competitive market. Such a result reduces the efficiency of the market and threatens universal service by creating artificial scarcity of local telecommunications service. Additionally, a dominant firm possessing market power may use its power to create entry barriers so it can maintain market power in the future.⁷⁰ It should be the goal of regulators, on an ongoing basis, to limit the ability of market participants to abuse market power.

ISSUES FACED IN ANTITRUST LITIGATION

The traditional view of market power in the telecommunications industry is changing. With the enactment of PURA95 and FTA96, the Commission must reevaluate what level of market concentration is acceptable and the protections needed to protect consumers, competitors, and potential competitors. Antitrust laws are intended to limit market concentration so that competitive forces can thrive. Traditional utility regulation, on the other hand, is employed when competition is either infeasible or would not obtain a desired result. As local telephony becomes more competitive, it is important to understand the function and limitations of current federal and state antitrust laws and of the Commission's regulatory authority. Under the state action doctrine, utilities that are actively price-regulated by state agencies may be exempt from the antitrust laws.⁷¹ As the level of price regulation diminishes, the likelihood of such an exemption for telecommunication carriers diminishes.

As the regulated marketplace moves towards a competitive marketplace, the principal danger lies in the incumbent carrier's ability to use existing market power to:

- Exclude potential competitors, and/or
- Set the cost of entering the business above what would exist in a competitive market.

The three principal federal antitrust statutory sections, relevant to this discussion, are the Sherman Act §1,⁷² Sherman Act §2,⁷³ and Clayton Act §7.⁷⁴ Table 7.1 lists some

Ante Analysis of the Deregulated Swedish Electricity Market," *The Energy Journal*, Vol. 16(2), pp. 97-109 (1995). The authors attempt to calculate the effect of market concentration on prices as Sweden restructures its electric industry. Because of its limited jurisdiction in this area, the Commission has not determined whether such supercompetitive pricing exists in Texas, but notes these articles as showing the concerns created by market concentration.

⁷⁰ This concern is a basis for the prohibition against predatory pricing.

⁷¹ *Federal Trade Commission v. Ticor Ins. Co.*, 504 U.S. 621 (1992) (stating that when a state "clearly articulated and affirmatively expressed" a policy to allow certain conduct by a company and the company is "actively supervised" by the state, the federal antitrust laws do not apply).

⁷² 15 U.S.C. §1. It states in relevant part that "Every contract, combination in the form of a trust or otherwise, or conspiracy, in a restraint of trade of commerce among the several states, or with foreign nations, is hereby declared to be illegal. ..."

⁷³ 15 U.S.C. §2. It states in relevant part that "Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the

of the conduct prohibited by these statutory sections. These antitrust principles are also embodied in Texas antitrust law.

Of particular interest to network-oriented industries, such as the telecommunications industry, Sherman Act §2 may be violated when an incumbent LEC (ILEC) refuses to give competitors reasonable access to bottleneck facilities, e.g., interconnection with the ILEC's local loop. A monopolist must allow competitors use of its facilities when:

1. The facility is essential and controlled by the monopolist;
2. The facility cannot be reasonably duplicated; and
3. It is feasible to provide use of the facility.⁷⁵

At this time, the state action doctrine may exempt LECs from this requirement.

TEXAS ANTITRUST LAWS

Texas' antitrust laws are codified in Texas Business and Commerce Code §15.01, *et. seq.* Section 15.05 incorporates many of the prohibitions embodied in federal law. For example, Section 15.05(b) makes it unlawful "for any person to monopolize, attempt to monopolize, or conspire to monopolize any part of trade or commerce." Section 15.05(d) makes it unlawful to acquire the stock or assets of another company if "the effect of such acquisition may be to lessen competition substantially in any line of trade or commerce."

Like federal law, Texas law also contains provisions that exempt regulated utilities from application of the antitrust laws. Section 15.05(g) contains the following exemptions that may be relevant to regulated utilities:

- Activities that are exempt from federal antitrust laws (other than those exempt under the McCarran-Ferguson Act);
- Activities required or affirmatively approved by state or federal law; and
- Activities required or affirmatively approved by a regulatory agency of Texas or the United States.

trade or commerce among the several states, or with foreign nations, shall be deemed guilty of a felony. ..."

⁷⁴ 15 U.S.C. §13(a).

⁷⁵ *MCI Communications Corp. v. AT&T*, 708 F.2d 1081 (7th Cir.), *cert. denied*, 464 U.S. 891 (1983).

Table 7.1: Partial Summary of Behaviors Prohibited by Antitrust Statutes

STATUTORY SECTION	BEHAVIOR PROHIBITED
Sherman Act §1	<p>This section is violated when there is some form of concerted action between two or more firms to unreasonably restrain trade. Most restraints are judged by a "rule of reason" test, which allows a defendant to show that the restraint is based on a legitimate business interest and does not unduly restrain trade. However, a per se violation will be found if a restraint of trade is based on one of the following methods: price fixing, group boycotts, and allocating territories/customers between competitors.</p> <p>The per se rule may also be applicable to tying arrangements.⁷⁶</p>
Sherman Act §2	<p>The two legal actions under this section are monopolization and attempted monopolization.</p> <p>This section is not violated if a party obtains a monopoly by competitive means in a way that benefits the social welfare, i.e., superior product, business acumen or historic accident. However, possession of monopoly power in a market that was willfully acquired or maintained is in violation of Sherman Act §2.⁷⁷ Attempted monopolization is shown when it is proven that the defendant engaged in predatory or anti-competitive conduct, had a specific intent to monopolize, and had a dangerous probability of achieving monopoly power.⁷⁸</p>
Clayton Act §7	<p>This section pertains to business combinations that create market power. Mergers and acquisitions are evaluated under Department of Justice (DOJ) Merger Guidelines.⁷⁹ The guidelines are intended to avoid market structures that significantly increase the likelihood that market power can be wielded. The DOJ will measure the horizontal market concentration to determine whether a business combination should be closely scrutinized.⁸⁰</p> <p>The DOJ also reviews vertical mergers under Clayton Act Section Seven to determine whether the combination will tend to create market power. Concerning public utilities, the DOJ Vertical Merger Guidelines notes that a business combination that provides the merged firm with the realistic potential to circumvent rate regulation may be in violation of the act.⁸¹</p>

⁷⁶ See, e.g., Trotter, Donald T., "Overview of Antitrust Law and Regulation," Presented at the 38th Annual NARUC Studies Program (August 7, 1996), p. 5. An example of a tying arrangement that occurs today occurs when a residential customer chooses a local service provider. That customer must also take access service from that provider. (There is some disagreement as to whether a reseller or the facility-based carrier whose lines are being resold is the access provider.)

⁷⁷ *United States v. Grinnell Corp.*, 348 U.S. 563, 570-571, 86 S.Ct. 1698, 1704 (1966).

⁷⁸ *Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 113 S.Ct. 884, 890-891 (1993).

⁷⁹ 57 Fed. Reg. 41,552 (1992).

⁸⁰ The predominant market concentration index is the Herfindahl-Hirschman Index (HHI). The HHI is calculated by squaring the market shares of each competitor, expressed as a percent. The products are added to yield the HHI. The larger the HHI, the more concentrated the market.

⁸¹ The DOJ Vertical Merger Guidelines are located at 49 Fed. Reg. 26,834 (1984).

These exemptions, like the state action doctrine in federal antitrust law, may exempt LECs from the state antitrust laws. Depending on the future structure of the telecommunications industry in Texas, state antitrust laws may become applicable to LECs in the future.

PURA95 PROVISIONS PROTECTING CONSUMERS FROM UNFAIR PRICING

If a fully competitive market emerges, Commission oversight over the local telecommunications markets may not be necessary. However, until that day arrives, it will be necessary for the Commission to ensure that fair trade continues to exist. In enacting PURA95, the legislature enunciated a new telecommunications policy. PURA95 §3.001 states that it is the "policy of this state to require the commission to do those things necessary to enhance the development of competition by adjusting regulation to match the degree of competition in the marketplace, thereby reducing the cost and burden of regulation and maintaining protection of markets that are not competitive." To properly meet this legislative requirement, it is incumbent upon the Commission to analyze the likelihood that workable competition can thrive in telecommunications markets and to act as necessary to prevent telecommunications providers from taking actions that could stifle competition.

There are a number of provisions in PURA95 that pertain to unfair trade practices and anticompetitive behavior. For example, there are provisions that prevent price discrimination among classes of consumers; restrict a utility from charging rates which, in the aggregate, exceed either its revenue requirement or its price ceilings; and prevent conduct by ILECs that would impair a new entrant's ability to compete.

PURA95 SECTIONS DIRECTLY PROTECTING CONSUMERS FROM UNFAIR PRICING PRACTICES AND OTHER FORMS OF ANTICOMPETITIVE BEHAVIOR

PURA95 contains a number of provisions that attempt to protect consumers by prohibiting unfair pricing practices by telecommunications utilities. PURA95 §3.202 requires the Commission to ensure that "every rate made, demanded, or received by any public utility" shall be just and reasonable and not be unreasonably preferential, prejudicial, or discriminatory. These prohibitions are reiterated in PURA95 §3.215. PURA95 §3.216(a) restricts a telecommunications utility's ability to deviate from its tariffed rates. PURA95 §3.051(m) empowers the Commission to enter orders necessary to protect the public interest if it is determined that an "interexchange telecommunications utility has:

1. failed to maintain statewide average rates;

2. abandoned interexchange message communication service to a local exchange area in a manner contrary to the public interest; or
3. engaged in a pattern of preferential or discriminatory activities prohibited by Section 3.215 and 3.217 of the Act, except that nothing in this Act shall prohibit volume discounts or other discounts based on reasonable business purposes.”

These provisions in PURA95 limit a telecommunications utility from using monopoly power to extract monopoly prices from consumers or to refuse to provide service to others.

PURA95 SECTIONS PROTECTING COMPETITION BY PROHIBITING ANTICOMPETITIVE BEHAVIOR

PURA95 also contains provisions protecting competitors from unfair trade practices and anti-competitive behavior. PURA95 §3.217 prohibits a telecommunications utility from:

1. discriminating against any entity that competes with the utility, or
2. engaging in “any other practice that tends to restrict or impair such competition.”

PURA95 §§1.251-1.253 address a utility’s duties and the Commission’s authority when such utility acquires stock of another public utility doing business in the State of Texas. PURA95 §3.051(l) empowers the Commission to enter orders necessary to protect the public interest when an interexchange carrier prevails in a complaint against another interexchange carrier alleging predatory pricing or attempted predatory pricing. PURA95 also requires ILECs to make their facilities available to competitors and contains numerous provisions concerning affiliate transactions that are related to the prevention of anticompetitive behavior. These provisions are intended to promote competition by preventing incumbent providers from erecting barriers that would inhibit the development of a fully competitive market.

PROTECTING CONSUMERS, COMPETITORS, AND POTENTIAL COMPETITORS

Consumer protection in the evolving telecommunications industry will be of three general types:

1. Ensuring that barriers to market entry are removed, so that competition can work;
2. Ensuring that firms do not use market power to charge prices higher than those that would prevail in a competitive market; and
3. Taking actions necessary to continue policies that are in the public interest but might not exist in a competitive market.

Special rates for low-income customers, schools, and libraries are examples of policies that are in the public interest but might not exist in a competitive market.

There are a number of ways a monopolist can limit the ability of competitors to enter a market. While some of these methods may violate antitrust laws, many of them are considered to be based on legitimate business purposes. For example, predatory pricing is generally considered to be the type of anti-competitive behavior that could lead to an antitrust violation. However, a company's refusal to share new research and development and its construction of excess capacity in anticipation of demand growth does not generally constitute conduct that would support an antitrust violation.⁸²

Affiliate transactions are a major concern in the evolving telecommunications industry. A regulated firm attempting to inhibit potential competition can attempt to sell products below cost in the competitive market while seeking to offset the lost revenues with overearnings in the regulated market.⁸³ Such a cross-subsidy not only impairs effective competition but perpetuates market power into the future.

The Commission's Role

The Commission's role in the evolving telecommunications industry, as it pertains to anti-competitive behavior and unfair trade practices, has yet to be formally defined. However, there are two areas of involvement that appear necessary so long as there are telecommunications utilities that possess market power. The Commission must be in a position to monitor the market and recognize any abuses of market power. It must also possess the ability to take the actions necessary to correct such actions and prevent their reoccurrence.

⁸² James E Meeks, *Antitrust Concerns in the Modern Public Utility Environment* (National Regulatory Research Institute, Columbus, Ohio, 1996), p.35. Modern cases have rejected the notion that building excess capacity to exclude competition violates the antitrust laws. One case that found a violation under this circumstance is *United States v. ALCOA*, 148 F.2d 416 (2nd Cir., sitting in lieu of the Supreme Court, 1945).

⁸³ William J. Baumol and J. Gregory Sidak, *Toward Competition in Local Telephony* (MIT Press: Cambridge, MA, 1994), p.83.

Monitoring

To monitor the market, the Commission will need to continue some of its current practices. For example, it may be necessary to require all telecommunications utilities to file reports with the Commission regarding the rates they charge and the quality of service they provide. Currently, dominant telecommunications utilities are required to file a number of reports with the Commission, while non-dominant carriers are not required to file the same reports. As the industry evolves, some of these reports may no longer be appropriate. Other reports may need to be modified to reflect the changing market and the changing role of the Commission. The Commission also must continue to perform audits so that it can analyze and examine the reports it receives, rather than just accept them on face value. Audit authority is crucial to insure that unregulated affiliates are not receiving unfair benefits by virtue of their affiliation with the regulated utility.

The Commission must become more expert at recognizing the potential abuses of market power, so that enforcement actions may be taken before competition becomes unworkable. The vast body of antitrust litigation can act as a guide to understand the complexities of market power and the ways it can be used and abused.

Enforcement

The key legislative issue regarding enforcement concerns the degree to which the Commission may respond to anti-competitive behavior and unfair trade practices. One school of thought would recommend that enforcement be limited to correcting the observed abuse and imposing appropriate sanctions to dissuade future abuse. A second school of thought would recommend that the Commission also have the authority to take the steps necessary to prevent potential abuses before they occur.

If the Commission monitors and recognizes abuses of market power and takes sufficient enforcement action, the emerging competitive market should thrive, provided that the economies of scope and scale of the industry will support numerous firms.

MARKET CONCENTRATION IN TEXAS

Every local exchange in Texas contains a high level of market concentration, based on DOJ guidelines. As new competitors compete to provide local service, the level of concentration will lessen. However, to the extent new competitors are reselling the service of the dominant LEC, market concentration in the wholesale market will not diminish. If, over time, market concentration diminishes sufficiently, the degree to which the Commission monitors market power should be reviewed.

Merger Mania

The telecommunications industry has transitioned from MaBell to Baby Bells to Merged Bells; from WiTel to LDDS to WorldCom. The onset of competition in the telecommunications market has spurred mega-mergers among some regional Bell operating companies (RBOCs) and even more multi-faceted communications companies. One analyst views the Bell company mergers as a ring from the past. "In a sense, the telephone companies are going back to their roots," said Ken Zita, partner at Network Dynamics Associates, Inc., New York.⁸⁴ The largest mergers of telecommunications companies are shown in Table 7.2, below.

Table 7.2: Largest U.S. Telecom Mergers/Acquisitions, January-September 1996

<i>Announcement Date</i>	<i>Target Company</i>	<i>Acquiring Company</i>	<i>Value of Transaction</i>
4/22/96	NYNEX Corp.	Bell Atlantic Corp.	\$21.3 billion
11/3/96	MCI Communications	British Telecommunications	\$20.9 billion
4/1/96	Pacific Telesis Group	SBC Communications	\$16.5 billion
8/26/96	MFS Communications	WorldCom Inc.	\$13.4 billion
2/26/96	Continental Cablevision	U.S. West Media Group	\$10.8 billion
10/11/96*	Turner Broadcasting System Inc.	Time Warner Inc.	\$7.6 billion
4/8/96	Cellular Communications	AirTouch Communications	\$1.5 billion
9/24/96	Skynet (AT&T)	Loral Space & Communications	\$.7 billion

*Date of shareholder approval; planned deal announced in 1995.⁸⁵

Primary Source: Securities Data Co.; tables printed in *Investment Dealers' Digest*.⁸⁶

Since FTA96 was signed into law, four RBOCs, SBC Communications (SBC), the Pacific Telesis Group (PacTel), Bell Atlantic, and NYNEX, have announced mergers in

⁸⁴ Denise Pappalardo, "Tracking the Merger Whirlwind," *Telephony*, April 1996, p. 6.

⁸⁵ Eben Shapiro, "Time Warner Completes Turner Deal, and Focus Shifts to Cutting Costs, Debt," *Wall Street Journal*, October 11, 1996, p. B17.

⁸⁶ This table is adapted from charts accompanying two articles by Ann Monroe in *Investment Dealers' Digest*: "Telecom Reform Bill Unleashes Deal Frenzy," July 8, 1996, p. 23; and "The Deals May Not Be as Big But They'll Continue to Come," October 7, 1996, p. 20. The information on the MCI/British Telecom deal is taken from certain newspaper articles reporting the acquisition, most notably one by John J. Keller, Gautam Naik, and Kyle Pope, "BT Secures its Place Among Titans with MCI Takeover," *Wall Street Journal*, November 4, 1996, p. A1.

the making. These mergers must receive approval from the Federal Communications Commission, the U.S. Justice Department, and some state commissions before they can be finalized.

The alliance of SBC Communications, headquartered in San Antonio, and the Pacific Telesis Group of San Francisco was the first announced merger of the RBOCs. PacTel's weak financial performance is one reason it had been searching for a lucrative partner for months. The firm reportedly talked with GTE Corp, NYNEX and BellSouth Corporation about a variety of possible combinations.⁸⁷ PacTel's financial pressure stems from spending billions to rebuild its wireless business, while spending billions more to upgrade its basic phone network. For SBC, the acquisition of PacTel offers many benefits, including PacTel's new licenses to offer "personal communications" wireless services throughout California.⁸⁸ PacTel also offers its operating territory in California, the gateway to lucrative West coast markets and high-growth international markets, including Mexico and the Pacific Rim.

In Texas, PUC approval is not required before or after Southwestern Bell acquires PacTel. PURA95 §1.251(a) says, "A public utility may not sell, acquire, lease or rent any plant as an operating unit or system in this state or merge or consolidate with another public utility operating in this state unless the public utility reports such transaction to the commission within a reasonable time." [Emphasis supplied.] Subsection (c) requires the Commission to review "such transactions" for consistency with the public interest; however, since Pacific Telesis is not a Texas company, §1.251 does not apply to this acquisition. Moreover, §3.053(b) states that §1.251 "does not apply" to an ILEC electing under Subtitle H of PURA95; hence Southwestern Bell, as such an electing ILEC, would be exempt from review. In California, by contrast, the Public Utilities Commission is performing an in-depth review of the Pac Tel - SWB merger.

Forming alliances is not new for Bell Atlantic and NYNEX. In July of 1995, the two companies joined forces to create Bell Atlantic NYNEX Mobile. This partnership created the second largest cellular operator and market in the nation. According to the Wall Street Journal, the agreement to merge Bell Atlantic and NYNEX creates a more competitive entity because it provides a nationwide foothold through geographic clustering. "One-third of all long-distance traffic in the United States terminates in Bell Atlantic/NYNEX's territories," said Eric Paulak of the Gartner Group.⁸⁹ The new Bell Atlantic will serve 36 million access lines and cover 14 states. However, only three of the 14 utility commissions in the merging region are required by law to approve the merger before any operational changes can take place.

Some analysts, such as Michael Costa, Merrill Lynch managing director, believe that while few if any further RBOC mergers are likely, significant mergers involving IXCs

⁸⁷ *Wall Street Journal*, April 1, 1996.

⁸⁸ *Ibid.*

⁸⁹ *Ibid.* This article valued the merger at \$23 billion.

and independent LECs may take place.⁹⁰ The recently announced acquisition of MFS by WorldCom (dba LDDS WorldCom) is the most notable example. In August 1996, WorldCom, Inc. and MFS executed a definitive agreement and plan of merger.⁹¹ The merger is expected to create one of the world's premier business communications companies, providing a single source for a full range of local, long distance, Internet, and international service over an advanced fiber-optic network.⁹² Such alliances are seen as the first steps toward forming the large, vertically integrated telecommunications companies that analysts expect to dominate the industry and provide everything from phone service to video to Internet services.⁹³ This transaction, initially valued at \$14.4 billion, combines the nation's fourth largest IXC with a leading provider of competitive access services and (because of MFS's earlier merger with UUNET Technologies) Internet access. MFS-WorldCom will have over 500,000 business customers and annual revenues of over \$5.4 billion. The new company will combine MFS's 3,500 miles of fiber-optic cable, located in 45 major business markets, with WorldCom's 11,000 existing and 9,000 planned miles of (mostly long-haul) fiber.⁹⁴ The new structure is the latest of many acquisitions for the former LDDS; its first was the 1992 purchase of Advanced Telecommunications Corporation.⁹⁵

Another mega-deal of potentially considerable importance to Texans is the purchase of Turner Broadcasting Systems by Time Warner. This deal, valued at \$7.6 billion, was approved by shareholders of both companies on October 10, 1996. Time Warner is the country's second largest cable-TV operator, with 11.7 million customers, and has received a COA to provide facilities-based local telephone service in Round Rock and north Austin. However, Time Warner CEO David Levin recently said that he "is not interested in being in the telephone business," at least partly because he considers the interconnection rules and fees set forth in the FCC's August 1996 Local-Competition Order to favor ILECs.⁹⁶ In addition, Levin and new Time Warner Vice Chairman Ted Turner told investors (just before the acquisition was approved) that they might give up control of Time Warner's cable systems to U.S. West, which owns a 25% share of Time Warner's cable systems, Hollywood studios, and HBO. Such cession of control would follow Time Warner's having spent billions of dollars in buying cable systems and replacing its coaxial cable with fiber-optic cable, which would be capable of providing two-way telephone and video services. Bill Carey, president of Time Warner Cable

⁹⁰ *Ibid.*, October 7, 1996.

⁹¹ "WorldCom, Inc. and MFS Announce Merger to Form Premier Business Communications Company," Press Release, August 26, 1996, p. 2.

⁹² *Ibid.*

⁹³ *New York Times*, April 20, 1996.

⁹⁴ The information in this paragraph is from Michael Grebb, "MFS-WorldCom Merger Aims to Create 'Bundling' Powerhouse, Add Facilities," *Telecommunications Reports*, September 2, 1996, pp. 11-13.

⁹⁵ *Ibid.*, p. 13.

⁹⁶ The quote and the information in this paragraph are from David Lieberman, "Time Warner May Unplug Cable Systems," *USA Today*, October 4, 1996, p. B1.

division, said in October that the company had set no date for deciding whether to give up plans to provide local telephone service.⁹⁷

In November 1996, MCI Communications Corp. and British Telecommunications PLC announced that their boards had approved a definitive merger agreement to combine the two companies. With a combined pre-merger market value of over \$54 billion and some \$42 billion in annual revenues, the post-merger company, Concert Global Communications PLC, would be the world's "second-largest international carrier" behind AT&T Corp., MCI Chairman and Chief Executive Officer Bert C. Roberts Jr. said. After the merger, BT and MCI would continue as subsidiaries of Concert, which is named after their existing seamless global services alliance. Though billed as a merger, the agreement calls for BT to name a majority of the Concert board members. Roberts said MCI and BT "will continue to sell and service customers under their own names in their respective countries." Roberts said the proposed merger would combine "BT's financial resources" and international network operating strengths with MCI's "competitive market-driven culture and growth momentum."⁹⁸

IMPACT OF MERGERS

Some consumer advocates believe that RBOC mergers dilute the competitive spirit of the federal act. Senator John McCain (R-Arizona) has called for Congressional hearings on all telecom mega-mergers "so that we can more fully understand what they mean for the average consumer."⁹⁹ States such as New York, with chronic rate and service quality problems with their RBOCs, may use the merger as an opportunity to wring rate changes and quality commitments from the merged entity as the price for state approval.¹⁰⁰

In reality, customers may not see the benefits of a merged provider for some years. In the interim, dissatisfied customers may switch to other providers while the merged entity is sorting out its operations. These new entities will have to deal with the potential consumer perception that personal service could not come from a company with headquarters several states away. Janee Briesemeister, a policy analyst with Consumers Union's Austin office, said that mergers such as SBC and Pacific Telesis' demonstrated her organization's fear that the new federal law, intended to promote competition, would instead result in fewer, bigger companies. "It sounds like we'll have a national oligopoly of companies that operate nationwide, just like in long distance there's really no meaningful rate differences between the large companies."¹⁰¹

⁹⁷ "Local Phone Service Reconsidered," *Austin American-Statesman*, October 12, 1996, p. D1.

⁹⁸ *Telecommunications Reports*, November 11, 1996, p. 13.

⁹⁹ "NYNEX-Bell Atlantic Merger Deal goes Up Against the States," *State Telephone Regulation Report*, vol. 14, no. 9 (May 1996), p. 3.

¹⁰⁰ *Ibid.*, p. 1.

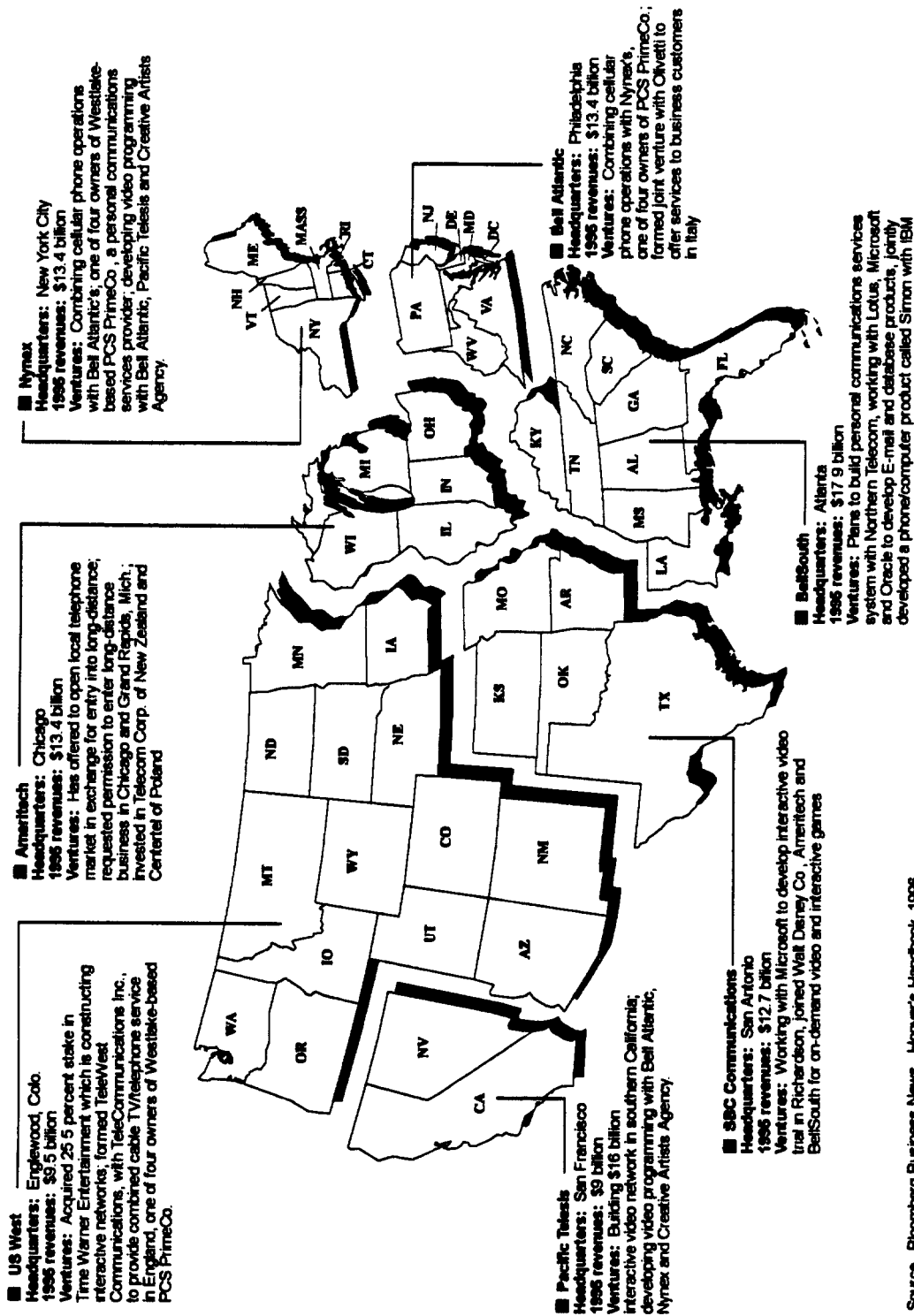
¹⁰¹ *Wall Street Journal*, April 2, 1996.

Clear winners in the competitive wars, especially related to merger activities, are the equipment manufacturers. As substantial upgrades are needed to keep the traditional telephone companies competitive, equipment vendors will be kept busy. Mergers require network integration for customer service and billing systems. Network interfaces and upgrades will also have to be established before the merged operations are up and running. The equipment manufacturers can also expect increased sales from new competitors entering the market. As the competitors try to differentiate their services from other vendors, a greater demand will be placed on the equipment manufacturers.

Initially, the biggest impact of the mergers was on shareholders and Wall Street fund managers. With SBC Communications' announcement to acquire Pacific Telesis Group, PacTel was the most active issue on the New York Stock Exchange, with a rise of \$6 a share and a decline of \$2.75 a share for SBC Communications. AT&T rose \$1.125 to \$62.25; NYNEX rose \$3.125 to \$53; and BellSouth rose \$1.75 to \$38.75.¹⁰²

¹⁰² *Ibid.*

Figure 7.1 Redrawing the Regions



Source: Bloomberg Business News, Hoover's Handbook, 1996

CHAPTER 8

SCOPE OF EXISTING COMPETITION IN TELECOMMUNICATIONS MARKETS

This chapter describes the telecommunications services that exist today and those that are currently being tested for use, along with relevant analysis on the existing revenue streams and the scope of competition within these classes of services. Unless otherwise indicated, the data on which the analysis is based were provided in response to data requests that were completed by all incumbent local exchange carriers (ILECs), as well as selected interexchange carriers (IXCs) and competitive access providers (CAPs), for the calendar year ending December 31, 1995. The information gathered by the data requests is summarized in Appendix F. Much of the data was provided under a condition of confidentiality; therefore, the data in this report are presented in an aggregated form.

The chapter is divided into four parts. The first section contains an analysis of the various types of local exchange services that traditionally have been provided by incumbent local exchange carriers. The second portion presents an evaluation of competition in access services provided by incumbent local exchange carriers (ILECs) and competitive access providers (CAPs). The third section covers inter- and intraLATA long distance and operator services. The final section of this chapter contains discussion and analysis of competitive products and services that have recently emerged or are expected to emerge in the foreseeable future.

Local Exchange Services

BASIC RESIDENTIAL AND BUSINESS SERVICES

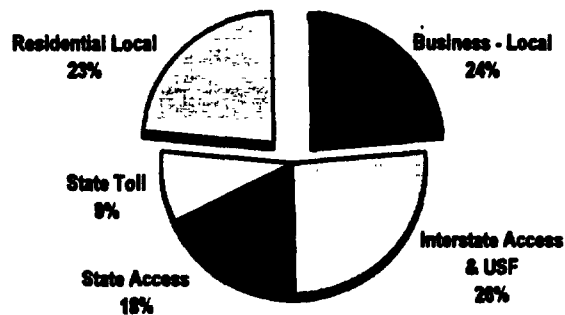
The "anchor tenant" of telecommunications service has long been basic local exchange service. With the imminent emergence of competition in this sector, and in light of ongoing discussions with respect to the scope of universal service (see Chapter 9), there is significant debate concerning the definition of "basic" in this context. According to the Public Utility Regulatory Act of 1995 (PURA95) § 3.002(1), "basic local telecommunications service" means:

- (A) flat rate residential and business local exchange telephone service, including primary directory listings;
- (B) tone dialing service;
- (C) access to operator services;

- (D) access to directory assistance services;
- (E) access to 911 service where provided by a local authority or dual party relay service;
- (F) the ability to report service problems seven days a week;
- (G) lifeline and tel-assistance services; and
- (H) any other service the commission, after a hearing, determines should be included in basic local telecommunications service.

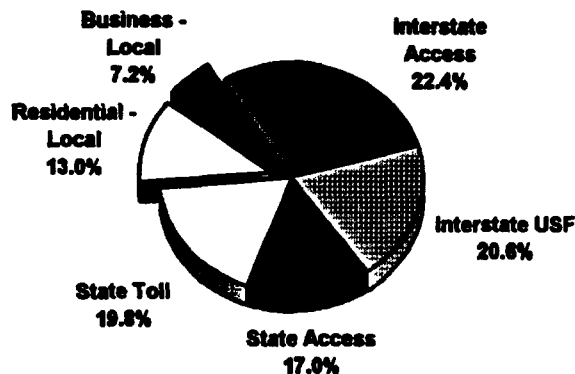
As shown in Figure 8.1, local exchange service revenues contribute almost half of the overall revenue stream of the ILECs on a statewide aggregated basis. This revenue stream varies greatly by individual ILEC, with smaller telephone companies showing much greater dependence on toll and interstate revenue, including the interstate Universal Service Fund, as illustrated in Figure 8.2.

Figure 8.1: Percentage of ILEC Revenue from Major Services (1995)



Source: Responses to 1996 ILEC Data Requests

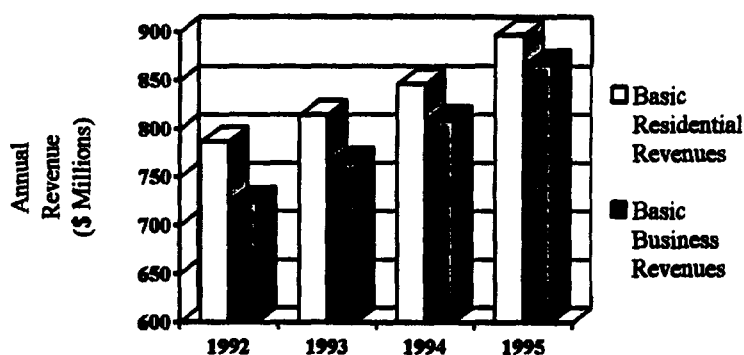
Figure 8.2: Revenue Streams of Small ILECs (1995)



Source: Responses to 1996 ILEC Data Requests

Figure 8.3 indicates that basic local exchange service revenues showed a healthy growth rate from 1992 to 1995. While the growth in customer access lines rose at a rate of a little over 3% per year, average cumulative revenue growth exceeded 5.5% per year.

**Figure 8.3: Revenue Trend – Basic Local Exchange Services
– All Texas ILECs**

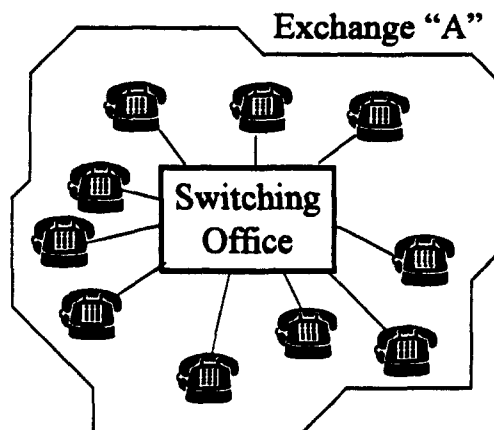


Source: Responses to 1996 ILEC Data Requests

At the end of 1995 (the “snapshot” date for most of the data used in this report), competition for basic local exchange service in Texas was limited to the provision of shared tenant services by property owners (also known as residential multi-tenant services, or RMTS) and cellular services. As discussed in Chapter 4 and other portions of this report, emerging competitors now have the opportunity to seek one of two competitive certificates -- the Certificate of Operating Authority (COA) or the Service Provider Certificate of Operating Authority (SPCOA) -- through the Legislature’s action in PURA95. Activity related to competitive certification has been intense since PURA95 became effective, with 10 COAs and 69 SPCOAs having been granted as of December 12, 1996. This report does not attempt to measure the number of subscribers currently served by emerging competitive local service providers.

While competition for basic residential and business services is only beginning to emerge at the time of this report’s publication, the efforts of the 74th Texas Legislature, the United States Congress, the Federal Communications Commission (FCC), and the Texas PUC all are focused on bringing effective competition to the local exchange market as soon as possible. It is safe to assume that the 1999 edition of this report will be able to report a significant increase in competitive activity in local exchange services.

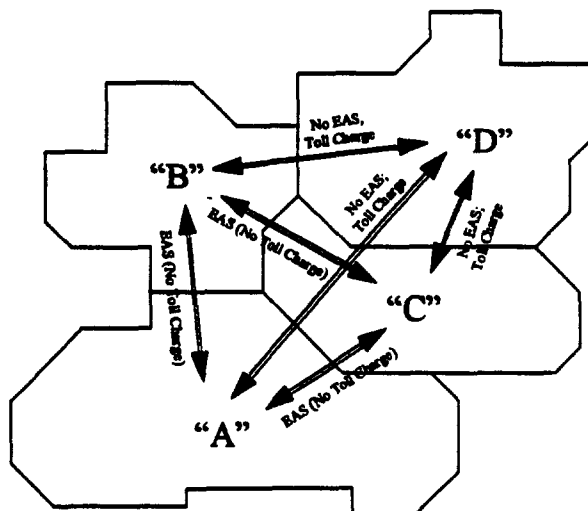
EXCHANGE AREAS AND EXTENDED AREA SERVICE



For many years, local telephone operating areas have been geographically divided into *exchanges*. These areas are used primarily to group subscribers for purposes of applying tariffed rates and to determine the office from which an applicant will be served. The simplest exchange architecture contains one switching center and a spoke-like arrangement of lines radiating out to customers. Metropolitan exchanges often contain many switching offices, called wire centers, arranged in a pattern of zones. The exchange provides an area within which local (toll-free) calls may be placed. Calls placed to a point outside the exchange would normally be subject to a usage-sensitive long distance charge.

Although administratively efficient, exchange boundaries tend to create inequities for residents on either side of an exchange boundary line. Next-door neighbors may have different local rates, different toll-free calling scopes, and different local exchange carriers, solely because of their geographic location. The Public Utility Commission of Texas (PUC or Commission) has approved alterations in exchange boundaries to more properly reflect the locations and exchange calling preferences of customers. However, customers have historically desired to maximize the benefit from their monthly telephone bill, and often have a specific interest in calling persons or businesses in nearby communities; thus they have exerted pressure for toll-free calling areas beyond their immediate exchange.

Extended Area Service (EAS) is an arrangement in which subscribers in one exchange are able to call subscribers in an adjoining exchange without paying usage sensitive toll charges. In some cases, a flat monthly rate additive is charged in lieu of long distance charges, and in other instances, the EAS service is considered to be a part of the basic local rate. Extended Metropolitan Service (EMS) is a similar service in which customers in exchanges surrounding a metropolitan exchange may pay a flat monthly rate to make calls into (and normally receive calls from) the metropolitan area. EAS and EMS arrangements involve the fundamental pricing question of whether the rate for such services should be flat rated, usage sensitive, or something in between. EAS issues can also evoke strong emotional reactions from consumers; first, because there is a natural tendency to try to obtain the best value for the



rate, and second, because of the negative perception of being required to pay long-distance charges for calls to neighbors, schools, and other community services.

Prior to 1993, the PUC modified its rules to approve new EAS arrangements in two ways. A community could file a petition and qualify for an EAS calling arrangement based on community of interest criteria, or the communities involved could enter into a joint agreement with the ILEC(s) serving the exchanges. The Legislature codified these two avenues for EAS in the most recent revision in enacting PURA95 § 3.262.

Consumer interest in the expansion of calling scopes in more rural areas led to heightened activity in the 73rd Texas Legislature in 1993 and the enactment of PURA §93A. Now codified as PURA95 §3.304, this section requires the provision of **Expanded Local Toll-Free Calling Service (ELCS)**. This statutory language establishes a new framework for the approval of applications to expand a small exchange's local calling area to include one or more nearby exchanges. Only non-metropolitan exchanges with fewer than 10,000 access lines are eligible to petition for ELCS, and telephone cooperatives and small telephone companies may be exempt from providing this service. As of October 1, 1996, over 750 applications for ELCS had been filed with the PUC, and over 735 had been approved.

Currently, approximately 86% of the serving wire centers in Texas, representing approximately 98% of the states' subscribers, have access to calling scopes that are larger than their immediate serving central office.

Calling scopes are important to an evaluation of competition in two ways -- the impact on local exchange competition and the impact on short-haul long distance competition. To attract customers, a local exchange competitor must meet or beat the ILEC's prices or its service features. Historically, customers have clamored for larger toll-free calling areas, and in some areas of Texas, the toll-free calling scope exceeds one million customers and may be more than 50 miles in diameter. The pressure is on competitors, then, to match these large calling areas, or in the alternative, offer a different package of services at a more attractive price. In a similar manner, competing long-distance carriers must address the impact of expanded calling scopes in the marketing of their services. Therefore, a linkage exists among EAS, local calling scopes, toll rates and emerging competition in these markets.

The PUC addressed the issues surrounding the competitive impact of EAS in Docket No. 14686,¹⁰³ which involved petitions by ILECs for the expansion of EAS in the Houston, Dallas-Fort Worth, and Longview areas. MCI and AT&T opposed the applications, arguing that the expanded EAS service would be anti-competitive and that EAS would reduce their ability to offer competitively-priced intraLATA toll service. In approving the petitions, the PUC described the telecommunications industry as one "progressing from a compartmentalized market structure to one in which geographic

¹⁰³ PUC Docket No. 14686, SOAH Docket No. 473-95-1570, *Petitions of Southwestern Bell Telephone Company, et al, for Extended Area Service*.

boundaries have little relevance to the service providers.”¹⁰⁴ The PUC examined the apparent conflict between EAS and the imputation requirements of PURA95, as well as the competitive ramifications of EAS. The PUC concluded that the EAS petitions should be approved, and would not be anti-competitive, since competitors are able to purchase (for resale) EAS at wholesale rates under FTA96 or PURA95. In this manner, all carriers can compete in the retail EAS market.

CUSTOM CALLING SERVICES

Custom calling services were introduced to the public telecommunications network on a limited scale with the installation of the first electronic switch in New Jersey in 1964. That switch allowed a caller to select from a variety of services including speed calling, call waiting and call forwarding. With the proper bridging equipment in place, the feature of three-way calling also could be offered.

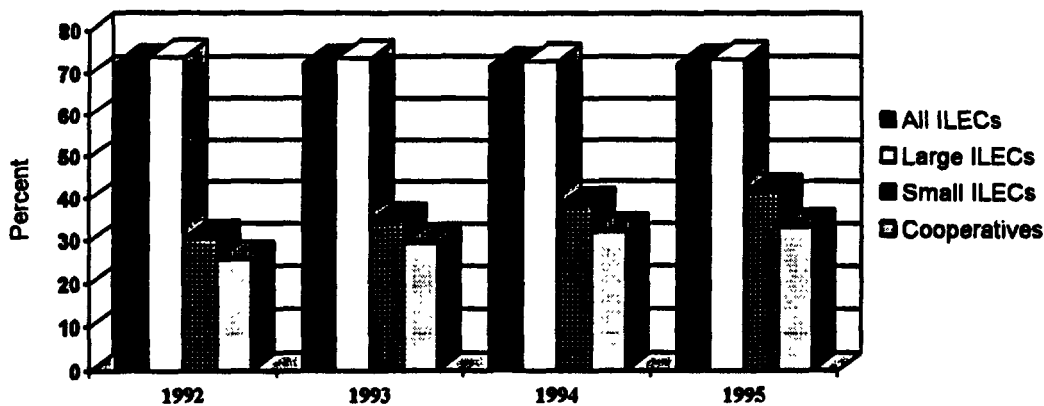
Approximately 30 years later, digital switching equipment in conjunction with stored program control processing systems offer over a dozen different varieties of custom calling features to subscribers. A number of these services allow the subscriber to interact with the central office switch to provide access to the service the customer wishes to invoke.

Virtually all ILECs offer some form of custom calling features. The success of these services can be measured by “take rate,” the percentage of access lines that subscribe to the services compared with the total number of access lines. As shown in Figure 8.4, the take rate for custom calling features for residential subscribers has increased within the reporting period, and shows significant variation between large ILECs, small ILECs, and cooperatives. The percentage subscribership for custom calling features for small and cooperative ILECs is approximately half that of the large ILECs, despite the fact that most of the small ILECs have the technological capacity to provide the services to their customers. A portion of this variation may be the result of the inability of small ILECs and cooperatives to discern subscribership to these services.

Custom calling features are considered to be discretionary services that the customer may or may not purchase. Certain types of custom calling features are considered more competitive than others. Some of the competitive features of customer premises equipment (CPE) or PBX-type services such as Centrex often offer services that are considered as equivalent or substitutable with custom calling features purchased from an ILEC.

¹⁰⁴ Order, PUC Docket No. 14686, p. 4.

Figure 8.4: Custom Calling - Residential Subscribership



Source: Responses to 1996 ILEC Data Requests

Standard Custom Calling Features

The most popular optional custom calling features -- Call Waiting and Call Forwarding -- are available from most switching offices, and represent a substantial revenue stream for ILECs. Those services are classified as Basket II Discretionary Services for ILECs electing under Subtitle H of PURA95.

As shown in Table 8.1 below, the number of customers subscribing to these services -- as well as the revenues received from the ILECs for these basic custom calling features -- has increased significantly since 1992.

Table 8.1: Custom Calling Features (Basket II) Subscribers and Revenues - All ILECs¹⁰⁵

	1992	1993	1994	1995
# Residential Access Lines	4,390,621	4,852,537	4,959,424	5,178,337
Residential Revenue	\$118,909,179	\$143,086,636	\$153,922,933	\$159,821,603
# Business Access Lines	402,852	460,601	481,600	505,454
Business Revenue	\$19,519,491	\$24,164,062	\$25,688,333	\$27,095,977

Source: Responses to 1996 ILEC Data Requests

¹⁰⁵ When the designation "Basket II" or "Basket III" appears in data tables throughout this chapter, it is merely an indicator of the basket in which the service would be assigned if the ILEC elects under PURA95 Subtitle H. However, all ILECs' revenues are included unless otherwise indicated.

Call Control Options

Another group of more advanced custom calling services known as call control features rely on the transmission of the calling party's number or other technical capabilities that are not readily available from all switching offices. Those services, listed below, are also classified as Basket II Discretionary Services for ILECs electing under Subtitle H of PURA95.

- Auto Redial
- Call Return
- Call Blocker
- Call Trace
- Priority Call
- Caller ID
- Personalized Ring
- Selective Call Forwarding
- Voice Dial

The following Table 8.2 presents the estimated number of access lines subscribing to these services and the estimated annual revenue produced. These data must be described as estimates because many of the reporting ILECs were not able to separately identify the lines and revenues for this group of services. It is evident that these call control options have experienced rapid growth in the past several years due to the deployment of advanced technologies such as Signaling System 7 and voice recognition systems.

Table 8.2: Call Control Options (Basket II) Access Lines and Revenues - All ILECs

	1992	1993	1994	1995
# Residential Access Lines	535,367	974,821	2,441,400	5,025,832
Residential Revenue	\$15,377,636	\$25,225,863	\$70,650,457	\$196,862,478
# Business Access Lines	21,757	32,795	68,503	169,868
Business Revenue	\$704,779	\$1,103,445	\$2,285,585	\$7,581,689

Source: Responses to 1996 ILEC Data Requests

Speed Calling and Three-Way Calling

Two custom calling features are considered to be sufficiently competitive and consequently are expressly classified under PURA95 as Basket III - Competitive Services for ILECs electing under Subtitle H: Speed Calling and Three-Way Calling. These services are fully substitutable with services available through the use of customer premises equipment and multi-line telephone systems. As can be seen from Table 8.3, revenues and access lines for these services are not growing as rapidly as for other custom calling features. In fact, business revenue for these services declined from 1992 through 1994 before showing growth in 1995.

**Table 8.3: Competitive Custom Calling Features (Basket III)
Access Lines and Revenues - All ILECs**

	1992	1993	1994	1995
# Residential Access Lines	2,389,129	2,476,178	2,346,952	2,411,013
Residential Revenue	\$63,117,786	\$54,653,514	\$49,437,622	\$49,688,793
# Business Access Lines	74,529	83,653	83,936	101,901
Business Revenue	\$3,049,900	\$2,585,743	\$2,316,461	\$2,595,563

Source: Responses to 1996 ILEC Data Requests

PAY TELEPHONES

As described in Chapter 3 of this report, competition with respect to payphones began in the early 1980s; however, policy issues on payphone regulation are still being addressed by the FCC and the states. The FCC has recently determined that all ILEC payphones will be deregulated and removed from the ILEC's investment base, and that the rates for local services from payphones must be deregulated.¹⁰⁶ The impact of the FCC's decision will not be clear for some time; however, the debate among competitors and regulators regarding this market indicate that at least certain aspects of the market are extremely competitive.

As shown in Tables 8.4 and 8.5, the number of ILEC-provided payphone lines has decreased, but remains slightly over 100,000 lines. At the same time, competitive payphone lines have increased during the three-year span by 40 percent, to more than 50,000 lines. With the PUC's new registration program, over 500 non-ILEC payphone service providers (PSPs) have registered to provide service in Texas.

Table 8.4: Lines and Revenue of ILEC Payphones - All Texas ILECs

	1992	1993	1994	1995
Payphones (ILEC-Provided)	114,433	110,295	106,333	104,565
ILEC Payphone Service Revenue	\$114,507,704	\$117,999,127	\$118,003,511	\$115,679,151

Source: Responses to 1996 ILEC Data Requests

¹⁰⁶ Report and Order, CC Docket No. 96-128; Para. 15.

Table 8.5: Lines and ILEC Revenue for Competitive Payphone Lines - All Texas ILECs

	1992	1993	1994	1995
Payphone Access Lines (Non-ILEC-Provided)	35,726	40,490	46,030	50,101
Private Pay Telephone Access Line Revenue	\$9,170,383	\$13,453,046	\$14,868,071	\$16,598,926

Source: Responses to 1996 ILEC Data Requests

PBX-TYPE (CENTREX) SERVICES

A PBX, or Private Branch Exchange, is a small local automatic telecommunications switch serving extensions in a business complex and providing access from those extensions to the public network. Through a PBX system, telecommunications service is provided within the customer's premises using an on-site switch, with access lines provided from the ILEC to complete calls outside the system. Line hunting features allow the system to randomly search a group of trunks and to provide access to the end user. Features typically provided by a PBX system are call forwarding, call hold, conferencing and voice mail.

When customers were allowed to own and interconnect their own CPE to the telephone network starting in the 1970s, PBX systems rapidly became very competitive. Many technically proficient CPE vendors stepped up efforts to gain the respect and business of large and small commercial customers by offering desirable features. When CPE was deregulated in 1983, the PBX units formerly owned and operated by ILECs on customers' premises were either sold or leased to customers.

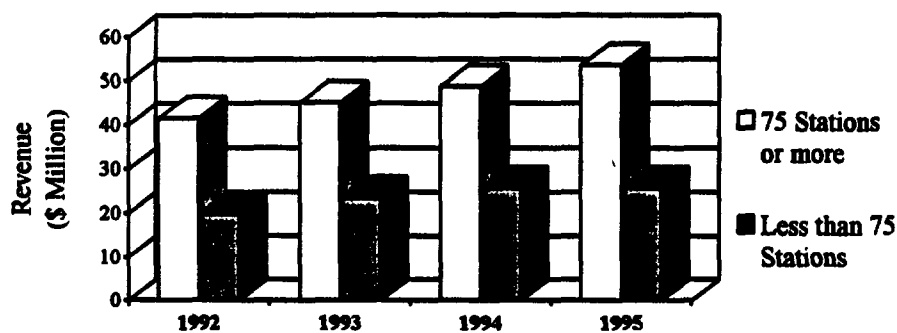
Following the deregulation of CPE, ILECs continued to offer Centrex service -- an arrangement of exchange access located within the central office of the ILEC designed to emulate the features of a PBX. By subscribing to Centrex and Centrex-type services like Plexar™ and Centranet™, end users are afforded the opportunity to have PBX-type communications features without incurring the capital investment associated with the purchase of PBX equipment. In today's technology, Centrex features are software-defined services, but continue to use subscriber loop wiring and cabling from the switching office to the customer location. Centrex service is often described as "PBX-type" service to avoid the confusion that may arise from the different configurations and trade names used by Centrex systems.

Southwestern Bell Telephone Company (Southwestern Bell or SWB) and GTE Southwest (GTE) are the primary providers of central-office based Centrex services in Texas. According to the GTE tariff on file with the PUC, there are approximately 24 Centranet™ customers with customer-specific contracts. These 24 contracts reflect a total of 73,620 stations.

Southwestern Bell places its customers in four specific categories:

1. 209 contracts for Plexar™ Custom reflecting a total of 184,974 stations,¹⁰⁷
2. 18,390 Plexar™ I customers with 62,526 stations,
3. 975 Plexar™ II customers with 41,873 stations, and
4. 2,385 Centrex (grandfathered) customers with 62,526 stations.

Figure 8.5: Centrex Revenue



Source: Responses to 1996 ILEC Data Requests

CUSTOMIZED SERVICES

Customized services, usually provided to large, sophisticated users, are specialized services that cannot be purchased from an existing ILEC tariff. Pursuant to PURA95 § 3.051(e), ILECs in Texas may request approval of customer-specific contracts for customized services. Applications for customer-specific contracts are reviewed pursuant to Subst. R. § 23.27, which sets forth the applicable approval standards. There are currently five customer-specific contracts for customized services that have been filed under Subst. R. §23.27.

Although these services are intensely competitive, the number of lines in service and the revenues for the services have nonetheless grown during the reporting period, as shown in Table 8.6.

¹⁰⁷ "Stations" are analogous to subscriber lines, except for the fact that they are a part of a separate PBX or PBX-type system rather than direct lines connected to the regular network.

Table 8.6: Customized Services (Basket III) Access Lines and Revenues

	1992	1993	1994	1995
No. of Access Lines	2,604	4,904	8,605	11,405
Revenue	\$3,103,200	\$2,984,185	\$8,176,292	\$9,808,845

Source: Responses to 1996 ILEC Data Requests

ENHANCED SERVICES

The FCC considers a service to be enhanced if at least one of the following criteria is met: a) the service entails a substantial amount of data processing; b) the content of a communications message is altered or manipulated, even though the service is primarily communications in nature; or c) any portion of the communications is stored for a period longer than that incidental amount of time needed for its transmission, and the user is able to interact with the stored portion. Examples of enhanced services are voice mail and messaging systems.

Table 8.7 illustrates the tremendous growth in both lines and revenues for these services during the reporting period. The data does not include enhanced services provided by Southwestern Bell, as the data from its subsidiary -- Southwestern Messaging Services Incorporated (SMSI) -- was not made available.

Table 8.7: Enhanced Services (Basket III) Lines and Revenues

	1992	1993	1994	1995
Residential Access Lines	7,284	29,838	47,283	63,996
Residential Revenue	\$620,403	\$1,394,006	\$2,531,533	\$4,057,795
Business Access Lines	1,029	2,770	2,927	3,806
Business Revenue	\$805,784	\$1,643,660	\$2,618,235	\$4,599,021

Source: Responses to 1996 ILEC Data Requests

PRIVATE LINE SERVICE

Private Line and Special Access Services provide a non-switched, direct transmission path connecting customer-designated locations. The connections may be either analog or digital and may connect the locations directly to one another or through an ILEC hub where some management function is performed (e.g., multiplexing).

These services are used by business customers to provide direct telecommunications links between and among business locations and from the business locations to selected IXCs for the provision of long distance services. The latter function is known as

bypass, as it uses directly connected facilities to bypass the normal switched access network of the ILEC.

Private line services have been the focus of competitive activity in Texas for several years. ILEC revenues for private line services have declined in recent years, as shown in Table 8.8. Individual business customers often realize an advantage in providing their own circuits between buildings, as it may save money and provide greater control than facilities leased from the ILEC. CAPs provide "fiber rings" in metropolitan areas to provide competitive private line and access services, as will be discussed in more detail later in this chapter.

Table 8.8: Private Line Service (Basket III) Circuits and Revenues

	1992	1993	1994	1995
No. of Private Line Circuits	108,495	107,012	102,266	97,812
Private Line Revenue	\$78,831,226	\$72,881,230	\$65,359,501	\$58,427,048

Source: Responses to 1996 ILEC Data Requests

As can be seen from Table 8.9, the number of private line circuits in service in large ILEC territory has decreased during the reporting period, while the circuits in the small ILEC and cooperative areas have made minimal gains. This data trend appears logical, as the larger ILECs provide service in urban areas where the highest competitive activity has been seen.

Table 8.9: Number of ILEC Private Line Service Circuits

	1992	1993	1994	1995
All ILECs	108,495	107,012	102,266	97,812
Large ILECs	103,198	101,953	95,834	91,276
Small Investor Owned ILECs	5,297	5,059	6,432	6,536
Cooperatives	276	359	364	512

Source: Responses to 1996 ILEC Data Requests

Table 8.10 illustrates the dynamics of competition among CAPs and ILECs. As revenue from private line services decreased during the 1992-1995 reporting period, revenue for these services increased for CAPs.

Table 8.10: Private Line Service - Comparison of ILEC and CAP Intrastate Revenues

	1992	1993	1994	1995
ILEC Private Line Revenue	\$78,831,226	\$72,881,230	\$65,359,501	\$58,427,048
CAP Private Line Revenue	\$813,617	\$3,387,008	\$7,409,192	\$11,279,684

Source: Responses to 1996 ILEC and CAP Data Requests

BILLING AND COLLECTION SERVICE

Billing and Collection is a service provided by an ILEC to other telecommunications utilities in which the ILEC bills and collects from end-user customers for services provided by the other telecommunications utility. Billing and Collection services include several categories: recording services, billing services, billing analysis services, and billing information services. Billing and Collection services were detariffed on an interstate level in 1985 by the FCC. On an intrastate basis, ILECs can apply for approval of customer-specific contracts pursuant to PUC Subst. R. §23.27 (Rate-Setting Flexibility for Services Subject to Significant Competitive Challenges).

As an example of the competitiveness of this service category, Southwestern Bell has 59 customer-specific billing and collection contracts that, in some cases, are customized to the specific requirements of SWB's customer.¹⁰⁸ SWB states that the larger carriers typically bill their own business customers but that SWB still retains the billing function for the residence customers.

A controversial issue that is directly related to billing and collection services involves the disconnection of local exchange service for non-payment of long distance and other service charges. This issue has been the subject of Project No. 16343, *Investigation of Efforts by Incumbent Local Exchange Carriers to Limit Disconnections*, and in November 1996 became the subject of a petition in Docket No. 16606, *Petition of Office of Public Utility Counsel, et al, to Adopt Rules Which Prohibit Telephone Utilities From Disconnecting Or Refusing To Connect Basic Local Telephone Service For Nonpayment Of Other Services, Including Long Distance, And Other Reforms*. As this petition is pending before the agency, this report will not address specific issues involved in the proceeding.

The number of accounts and the ILEC revenue associated with the Billing and Collection service category are shown in Table 8.11.

**Table 8.11: Billing and Collection Service (Basket II) Accounts and Revenues
- All Texas ILECs**

	1992	1993	1994	1995
No. of Accounts	149,422	142,260	136,923	164,452
Billing & Collection Revenue	\$79,702,675	\$75,912,568	\$76,881,335	\$75,695,657

Source: Responses to 1996 ILEC Data Requests

¹⁰⁸ Tariff Control No. 16511, *Application for Billing and Collection Services; Southwestern Bell Customer Specific Pricing Plan Tariff*, Section 4, Sheet 6.

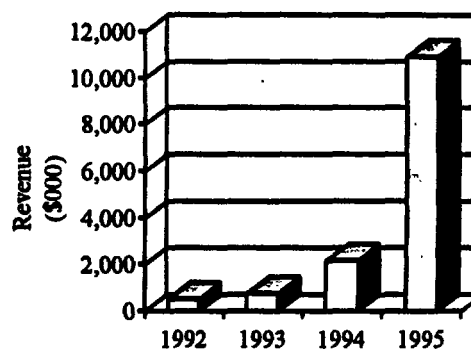
ISDN SERVICE

Integrated Services Digital Network (ISDN) is a service that utilizes the existing twisted-pair copper wire telephone network to provide a switched digital architecture, allowing transmission of higher quality data and video than is possible on the normal network. To operate, both the calling and the called party must use special equipment that facilitates the ISDN transmission, and the network switching office must be equipped with features that allow ISDN service to operate.

ISDN's basic rate interface (BRI) consists of two "B" channels, each with a data rate of 64 kilobits per second (kbps), along with a third channel, the "D" channel, that is used for call control at a data rate of 16 kbps. The BRI configuration is often known as "2B+D," as it contains the two B channels plus one D channel. Another configuration, the primary rate interface (PRI), is available for more complex applications. The PRI consists of 23 B channels along with the D channel for call control, and is sometimes referred to as the 23B+D architecture. (The PRI configuration does not function via a normal twisted-pair copper loop, but must be transported on a four-wire T-carrier system.)

ILECs offering ISDN service during the 1995 reporting period were Southwestern Bell, GTE, Alltel - Sugar Land, and Fort Bend. As can be seen from Figure 8.6 and Table 8.12, revenues from these relatively new services are growing rapidly.

Figure 8.6: ISDN Service Revenue



Source: Responses to 1996 ILEC Data Requests

Table 8.12: ISDN Service (Basket II) Circuits and Revenues

	1992	1993	1994	1995
No. of Circuits	1,160	1,760	4,600	21,723
ISDN Service Revenue	\$511,690	\$776,226	\$2,167,611	\$10,938,404

Source: Responses to 1996 ILEC Data Requests

NON-VOICE SWITCHED DATA SERVICE

The non-voice switched data service category is a generic category, including several different services that allow the customer to send data at speeds of 56 kbps or greater over a switched line. Each of the following services may be considered non-voice switched data services:

- Switched 56 kbps, or PSDS (Public Switched Digital Service)
- FR (Frame Relay)
- Packet switching, or PPSS (Public Packet Switched Service)
- SMDS (Switched Multi-megabit Data Service)

Five Texas ILECs reported circuits and revenues in this category for the purpose of this report: Southwestern Bell, GTE, Sprint - Centel, Livingston, and Community telephone companies. For ILECs electing under PURA95 Subtitle H, services in this category are considered to be competitive, Basket III services. The decline in revenue shown in Table 8.13 illustrates a migration out of this category, either to competitive services, or to other services offered by the ILECs.

Table 8.13: Non-Voice Switched Data Service (Basket III) Circuits and Revenues

	1992	1993	1994	1995
No. of N-V Switched Data Circuits	16,908	15,099	13,746	12,616
Switched Data Service Revenue	\$39,841,905	\$36,506,210	\$32,552,027	\$28,211,978

Source: Responses to 1996 ILEC Data Requests

DARK FIBER SERVICE

ILECs as well as their competitors place optical fiber cables on new installations where bandwidth and capacity dictate that it be used. When a cable is placed, there are typically "idle" strands of fiber that are not connected to transmission circuit equipment, but are available for future use. These strands that are not lit by optical electronics are referred to as dark fiber.

Beginning in 1990, Southwestern Bell offered to lease its spare dark fiber strands to customers at a customer-specific contract rate. Then in 1994, the company withdrew the offering, continuing to provide service to existing customers on a grandfathered basis for the amount of time remaining on their contract. No other ILECs currently provide dark fiber service. Table 8.14 reflects the number of dark fiber circuits and the revenue produced by this service.

Dark fiber has become a contentious issue within the negotiations and arbitration hearings at the Texas PUC for competitive interconnection. Competitors want to be allowed to obtain dark fiber strands in order to place their own optical electronics on each end and thus provide competitive services without redundant facility placement.

In the Commission's Arbitration Award in Docket 16189 et al,¹⁰⁹ Southwestern Bell is required to provide dark fiber in the feeder segment of the loop as an unbundled network element for purchase by competitive local service providers under specific conditions. In addition, SWB must provide dark fiber in the dedicated interoffice transport segment of the network as an unbundled network element for lease by local service providers under specified conditions.

Table 8.14: Dark Fiber Service (Basket III) Circuits and Revenues

	1992	1993	1994	1995
No. of Dark Fiber Circuits	n/a	182	241	162
Dark Fiber Service Revenue	n/a	\$662,944	\$3,252,953	\$2,318,345

Source: Responses to 1996 ILEC Data Requests

¹⁰⁹ PUC Docket Nos. 16189, 16196, 16226, 16285, and 16290, *Petitions of MFS, Teleport, AT&T, MCI, and American Communications Services, Inc. for Compulsory Arbitration to Establish Interconnection Agreements with Southwestern Bell Telephone Company.*

Access Services

ILEC ACCESS SERVICES

ILECs perform two roles in the provision of long-distance toll services. First, ILECs provide their own long-distance (intraLATA) toll service in competition with IXC's. Second, ILECs provide access to the local exchange network so that IXC's may originate and terminate long-distance calls. In 1978, the FCC initiated a major effort that resulted in creation of a comprehensive access charge plan.¹¹⁰ Not long after the FCC implemented an access charge plan in 1984, the Texas PUC mirrored most aspects of the FCC's plan on an intrastate basis.

**Table 8.15: Southwestern Bell Access Charges
Comparing Interstate and State Levels**

Year	Interstate	Texas Intrastate
1984	17.26¢	20.14¢
1985	16.17	20.70
1986	14.00	19.48
1987	11.49	19.46
1988	10.58	19.46
1989	9.11	19.46
1990	7.48	16.39
1991	6.97	16.03
1992	6.76	15.51
1993	6.66*	12.44
1994	6.89*	11.76
1995	6.16*	11.64

Source: Southwestern Bell Tariffs;
FCC Trends in Telephone Service, May 1996

* All RBOCS; Comparable SWB data not
available because of transport restructuring

Table 8.15 shows the relationship of Southwestern Bell's access charges for interstate and intrastate calls. A portion of the difference between interstate and intrastate access charges can be attributed to the interstate Subscriber Line Charge, assessed to all subscribers on a flat monthly basis (see Table 8.16). Collection of revenue from this source allows other interstate charges to be reduced. There is no parallel intrastate subscriber line charge in Texas.

Under the system of access charges, an ILEC charges an IXC for originating and terminating a long-distance call. Because long-distance telephone calls are routed through the ILEC's central office switch, the origination and termination functions are known as switched access service. Another service -- special access -- is a connection to dedicated private line type (non-switched) circuits.

¹¹⁰ CC Docket No. 78-72, *MTS and WATS Market Structure*.

Switched Access

The charges assessed by ILECs for switched access are divided into four elements:

1. end user charge (also known as subscriber line charge, or SLC) [interstate access lines only, not intrastate];
2. carrier common line (CCL) charge;
3. local switching charge (LS); and
4. local transport charge.

The interstate end user component, or Subscriber Line Charge, reflects the recovery, on a flat-rate monthly basis from the customer, of a portion of the cost assigned to the interstate jurisdiction for the provision of the common line facilities between the end user and the central office serving that end user. The CCL charge assessed to IXC's was designed to recover a portion of the cost of the common line as well as other embedded ILEC costs. The LS component reflects the charge for the use of the local end office switching and the line termination functions. The local transport component reflects the charge for the use of facilities between the access customer's premises (a Point of Presence or POP, in the case of the IXC) and the end office where the switched access traffic is switched to originate and terminate the call.

Table 8.16: Interstate Subscriber Line Charge, per Line per Month

Year	Residence	Multiline Business
1984	\$0.00	\$4.99
1985	1.00	4.99
1986	2.00	4.97
1987	2.60	5.12
1988	2.60	5.01
1989	3.50	4.94
1989	3.50	4.83
1990	3.48	4.83
1991	3.49	4.74
1992	3.49	4.68
1993	3.50	5.37
1994	3.50	5.45
1995	3.50	5.50

Source: FCC Trends in Telephone Service

Switched access revenues and minutes of use of Texas ILECs have steadily increased over the last three years, as shown in Tables 8.17 and 8.18.

Table 8.17: Intrastate Switched Access Revenue - All Texas ILECs

Year	Revenue	Percent Increase from Previous Year
1992	\$885,959,961	---
1993	\$889,249,496	0.37%
1994	\$941,318,981	5.86%
1995	\$1,019,744,845	8.33%

Source: Responses to 1996 ILEC Data Requests

Table 8.18: Intrastate Switched Access Minutes of Use - All Texas ILECs

<i>Year</i>	<i>Minutes of Use (x 1,000)</i>	<i>Percent Increase from Previous Year</i>
1992	5,880,081	---
1993	6,512,044	10.8%
1994	7,766,313	19.3%
1995	8,726,630	12.4%

Source: Responses to 1996 ILEC Data Requests

Special Access

Special access revenues for the ILECs have varied erratically during the reporting period. As discussed in more detail later in this section, special access service is susceptible to competition in areas where a CAP may provide point-to-point connections.

Table 8.19: Special Access Revenue - All Texas ILECs

<i>Year</i>	<i>Revenue</i>	<i>Percent Increase from Previous Year</i>
1992	\$43,821,894	---
1993	\$59,327,695	35.4%
1994	\$50,986,790	-14.1%
1995	\$58,142,333	+14.1%

Source: Responses to 1996 ILEC Data Requests

Developments Impacting Access Services**Local Transport Rates**

The intrastate rates for local transport were based upon an equal-charge rate structure established by the Modification of Final Judgment (MFJ) that led to the break-up of AT&T and the creation of the Regional Bell Operating Companies (RBOCs). The MFJ order required that charges for the transport of switched access traffic of the same type between end office and facilities of IXC's should be equal, per unit of traffic delivered or received, for all IXC's, until September 1, 1991. In October 1992, the FCC adopted an interim rate plan that restructured the local transport component of interstate switched access service. The interim rate structure consisted of: 1) a flat rate entrance facilities and direct-trunked charge, a usage-based tandem-switched transport charge, and 2) an interconnection charge. The new rate structure for transport service was designed to reflect the differences in the costs of providing transport in different ways.

The Texas PUC amended its Subst. R. § 23.23(d) to address the restructure of the local transport component of intrastate switched access service. The rate structure for intrastate local transport mirrors the interstate local transport rate structure and authorizes rate levels based on Texas-specific costs.

Access Charge Reform

The FCC has clearly signaled its intent to reform the current system of access charges in conjunction with other changes being made in response to FTA96. Access charge reform is one of three major issues under review by the FCC, in addition to current rulemaking proceedings on interconnection and universal service. The FCC intends to complete access charge reform before or concurrently with a final order on universal service, no later than May 8, 1997.

PURA95 §3.352 restricts the Texas PUC from reducing the rates of electing companies under Subtitle H of PURA95 for intrastate switched access services before the expiration of the cap on basic network services.

Special Access-Expanded Interconnection

As discussed in the Commission's 1995 *Report to the Texas Legislature on the Scope of Competition*, various authorities have weighed in on the provision of expanded interconnection for interstate special access. After the FCC ordered ILECs to permit physical collocation of IXC equipment in ILEC central offices, a federal court overturned the FCC ruling, holding that the FCC lacked authority to impose physical collocation requirements on ILECs. The FCC replaced the physical collocation requirement with a virtual collocation requirement. The Commission's Subst. R. § 23.92 was subsequently adopted, requiring each affected ILEC to offer intrastate expanded interconnection at the same locations, in the same manner, and, except for price, under the same terms and conditions as it offers interstate expanded interconnection.

In February 1996, the Commission amended Subst. R. §23.92 to implement PURA95 §3.456. The amendment requires an ILEC to provide expanded interconnection to another LEC if the second LEC agrees to provide expanded interconnection, in a like manner, to the ILEC. Thus, ILECs will be able to obtain expanded interconnection from competitive LECs.

Competition for Access Revenues

Prior to passage of PURA95 and FTA96, the potential for real competition for access services was limited. However, these pro-competition statutes are likely to lead to real competition in this market segment. For example, in its First Order in CC Docket No. 96-98, the FCC has set forth rules requiring ILECs to make unbundled elements from their networks available to competitors. Any competitive LEC that makes use of this provision

will be the party providing access service to IXC's according to the FCC order. The provision of service through the use of the ILEC's unbundled services differs from resellers of the ILEC's local services; such resellers are not the party providing access services. Similarly, parties that build out their own local exchange networks will also be the access providers for calls originating and terminating on their networks.

As this market segment becomes increasingly competitive, the ability to maintain access prices above cost will become problematic. As will be discussed further in Chapter 9 addressing universal service, it will be necessary to designate an explicit support mechanism to maintain affordable local service rates if rates for access services cannot be sustained at a price substantially above their costs.

COMPETITIVE ACCESS PROVIDERS

Overview

Competitive access providers (CAPs) are non-traditional telecommunications companies that provide facility-based access and private line services, generally to business customers in metropolitan areas. Since they first appeared in telecommunications markets in 1987, these providers have been designated as metropolitan area network (MAN) providers, alternative access vendors (AAVs), alternative local transport providers (ALTs), and now CAPs.¹¹¹ As these access providers have established themselves as facility-based local exchange telecommunications carriers, they represent a genuine competitive challenge to the ILECs in the future provision of basic local telecommunications services.

Teleport Communications Group (TCG) became the first non-Bell company to be chosen to offer local service under the federal government's long-distance bulk buying system, FTS-2000.¹¹² By using TCG to provide local dial tone and message units for 450 lines at a new Internal Revenue Service offices in Downers Grove, Illinois, the federal government has realized savings of \$2 million annually.¹¹³ TCG successfully prevailed over Ameritech, which usually serves the federal buildings in metropolitan Chicago, in obtaining this contract with the federal government.

The nationwide growth of CAPs demonstrates the viability of competition in private line and special access markets, and the CAPs' ability to compete head to head with ILECs. MFS ranks as the largest CAP in the nation, reporting revenue of \$583.2

¹¹¹ Dr. Joseph S. Kraemer, Local Competition: *The War of Many Against One* (1996-2000), (Washington D.C.: A.T. Kearney, 1996), p. 24. (A.T. Kearney is a subsidiary of EDS Communications & Consulting.)

¹¹² Gail Lawyer, "CAPs Break Through Another LEC Bastion," *FCC Report*, February 28, 1996, p. 10.

¹¹³ *Ibid.*

million for 1995, and offers a wide range of voice, data, and other enhanced services and systems specifically designed to meet the requirements of business and government customers.¹¹⁴ Third quarter 1995 revenue totals of \$421.1 million and fourth quarter revenue of \$145.9 million represented a 123 percent and 68 percent increase over comparable 1994 periods, respectively. From a base of 14 metropolitan networks at year-end 1993, MFS now has networks in 49 cities and plans to expand that number to 90 in the next three years, including 25 international markets.

Many analysts believe that CAPs have a strong competitive advantage for entry into the local exchange market. As quoted in *X-Change Magazine*, *Business Week* has speculated that companies looking to enter the local phone market or expand outside their region may find it much easier to buy a company with networks in place than to try to build their own.¹¹⁵ CAPs can offer new competitors a substantial base of business customers because their presence is typically concentrated in large metropolitan areas where most new competitors are looking to establish their customer base. A CAP's metropolitan network would be attractive to cable companies whose customer base is concentrated in rural areas. Cable companies seeking to provide interactive, video services consider CAPs as potential partners to access business customers. Without this access to CAP networks, cable companies would have to partner with ILECs or build their own facilities to reach businesses.

Competitive Access Providers in Texas

CAPs generally have a strong presence in Texas, specifically in our state's premium metropolitan areas including Dallas, Houston, Austin, San Antonio, Fort Worth, and El Paso. In response to the PUC's data request for this report, nine CAPs indicated that they are currently providing private line, special access, and dark fiber services. The aggregated revenues for these services are shown in Tables 8.20 and 8.21

These data show a significant growth in these companies in the 1992-1995 time span, indicative of the emergence of competitive carriers for these services. At the same time, as shown in Figure 8.7 and Table 8.8, ILEC revenues for intrastate private line services was decreasing.

Table 8.20: Intrastate CAP Revenues in Texas

	1992	1993	1994	1995
Private Line/Virtual Private Line	\$813,687	\$3,387,008	\$7,409,192	\$11,279,684
Dark Fiber Service	0	0	5,850	0
Total	\$813,687	\$3,387,008	\$7,415,042	\$11,279,684

Source: Responses to 1996 CAP Data Requests

¹¹⁴ Data in this paragraph from Laura Engleman, "CAPs Off to MFS Communications," *X-Change*, March-April 1996, p. 32

¹¹⁵ *Ibid*, p. 33.

Table 8.21 Interstate CAP Revenues in Texas

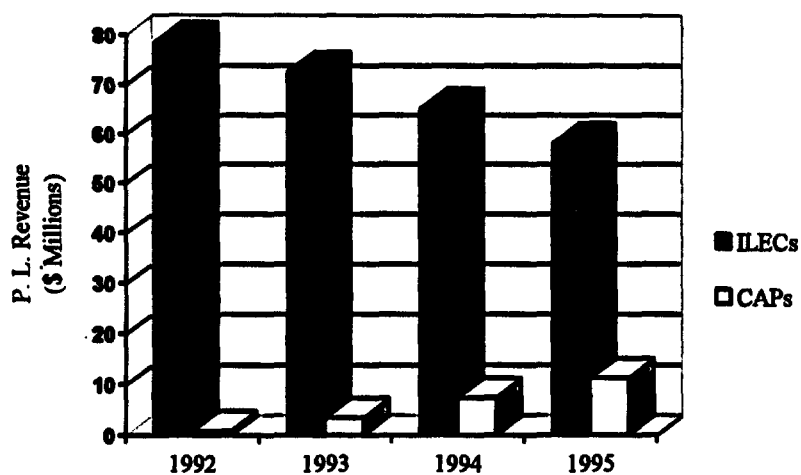
	1992	1993	1994	1995
Private Line/Virtual Private Line	0	\$0	\$51,876	\$13,952,366
Dark Fiber Service	0	18,000	578,700	2,711,700
Special Access Service	0	70,288	2,408,159	4,952,939
Total	0	\$88,288	\$2,986,859	\$21,495,231

Source: Responses to 1996 CAP Data Requests

Table 8.22 CAP Business Customers in Texas

	1992	1993	1994	1995
Private Line/Virtual Private Line	87	209	184	546
Dark Fiber Service	0	1	2	1
Special Access Service	0	12	28	58
Total	87	222	213	605

Source: Responses to 1996 CAP Data Requests

Figure 8.7: Comparison of Revenue; Intrastate Private Line Service

Source: Responses to 1996 ILEC and CAP Data Requests

Table 8.23 Competitive Access Providers

Competitive Access Provider	Location(s) Served or Planned	Certification *	Interconnect Agreement?
American Communications Services, Inc. (ACSI)	Fort Worth, El Paso, Amarillo, Irving	SPCOA	in arbitration
Brooks Fiber Properties	El Paso	none	no
CSW Communications	Austin	none	no
GST Telecommunications	El Paso	none	no
ICG Access Services	San Antonio	SPCOA	no
MCIMetro Access Communications	Dallas	COA	in arbitration
Metro Access	Unknown	none	no
Metropolitan Fiber Systems (MFS)	Dallas, Houston	SPCOA	in arbitration
Phonoscope	Houston	none	no
Teleport Communications - Houston, Inc.	Houston	SPCOA	in arbitration
TCG - Dallas	Dallas, Fort Worth	SPCOA	in arbitration
Time Warner Communications	Houston, Austin, Dallas, El Paso	COA (Austin only)	yes

* SPCOA or COA certificates are not needed to provide competitive exchange services as a CAP. However, a CAP must obtain a SPCOA or a COA certificate under PURA95 to provide local exchange telecommunications services.

The Future of CAPs in the Competitive Market

Partnerships between CAPs, cable-TV companies, and IXC's seem to be the next step in the development of the competitive telecommunications market. Cable networks serve primarily residential neighborhoods, while CAPs traditionally serve a business customer market. In combination, one or more cable companies plus a CAP may cover essentially the main revenue base of a LEC's metropolitan franchise area.¹¹⁶

IXCs like MCI, through its subsidiary MCIMetro Access, have entered the local exchange market by construction or acquisition of facilities-based local transport capabilities. IXCs can reach agreements with CAPs for access services and reduce access charges paid to LECs.

¹¹⁶ Kraemer, *op. cit.*, p. 25

In a report published by A.T. Kearney (a subsidiary of EDS Communications & Consulting), Dr. Joseph S. Kraemer expresses the following view of the future of CAPs:

CAPS will have proven so effective at providing services to business customers that they will be considered integral to all competitive offerings and be absorbed into larger entities that may or may not choose to leave CAPS subsidiaries operating on their own.¹¹⁷

CAPs may be able to retain their core business customer base while increasing market share through partnerships with other telecommunications carriers, particularly new competitors. The state-of-the-art, fiber-optic network built by CAPs affords them a better position than most carriers in the market.¹¹⁸

¹¹⁷ *Ibid.*

¹¹⁸ Engleman, *op.cit.*, p. 33.

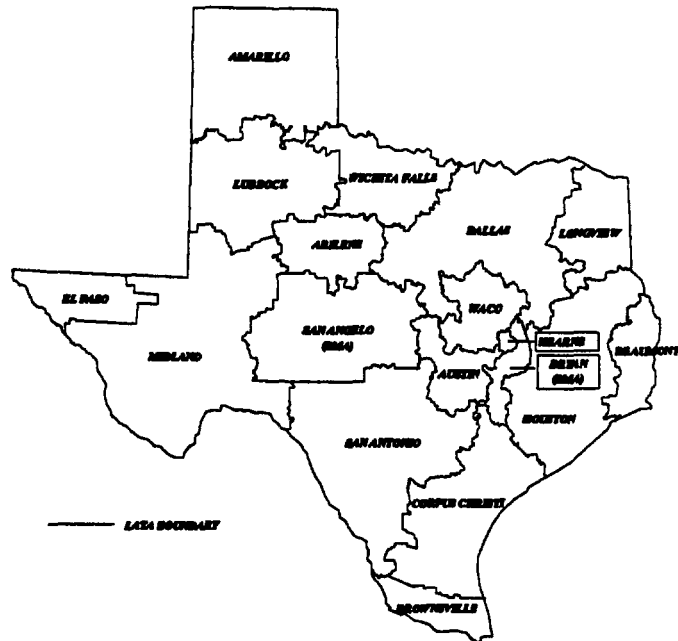
Long Distance and Operator Services

INTRALATA TOLL SERVICES

At the time of the implementation of the MFJ and the divestiture of the Bell Companies in 1984, the nation was divided into serving areas known as Local Access Transport Areas, or LATAs. Bell Operating Companies such as Southwestern Bell were not allowed to provide long-distance calling services between LATAs, but were allowed to provide intraLATA toll service. A separate consent decree created similar geographic areas, called Service Market Areas (SMAs), in the GTE operating area. There are 16 LATAs and two SMAs in Texas. Under these court decisions, interLATA long-distance calls were to be provided by interexchange carriers such as AT&T, MCI, or Sprint, but not by SWB or GTE.

In order to promote fair competition, switching offices were equipped with "equal access" features that would allow callers to select the long-distance company to carry their calls. Customers were asked to presubscribe to the interexchange carrier of their choice for "0+" and "1+" interLATA long-distance calling. As discussed more in Chapter 10 of this report, almost all telephone customers in Texas have equal access to long-distance companies for interLATA calls.

Figure 8.8: LATAs in Texas



This equal access and presubscription process was not mandated for intraLATA long-distance calls, which were generally calls of less than 200 miles. The ILECs were allowed to retain their role as the carriers of intraLATA toll calls for "default" traffic; that is, unless the caller utilized special codes to access another carrier, the "0+" or "1+" call would be handled by the ILEC. In order to use a long-distance carrier other than the ILEC for an interLATA call, the caller must dial at least five extra digits--usually an IXC access code of the form 10XXX.

Table 8.24 IntraLATA Toll (incl. MTS, 800 & WATS) Revenue - All ILECs

<i>Year</i>	<i>Revenue</i>	<i>Percent Increase from Previous Year</i>
1992	\$330,356,120	---
1993	\$661,838,015	100.3%
1994	\$593,475,928	-10.3%
1995	\$516,954,643	-12.9%

Source: Responses to 1996 ILEC Data Requests

IntraLATA Dialing Parity

FTA96 requires that the intraLATA dialing disparity between IXC's and ILEC's described in the preceding paragraph eventually be eliminated.

FTA96 §271(e)(2) generally requires each Bell Operating Company (BOC) to provide intraLATA toll dialing parity if it enters the interLATA market. The FCC has recently adopted rules¹¹⁹ implementing this provision of the statute. The FCC determined that when intraLATA dialing parity is implemented, FTA96 requires, at a minimum, that customers be entitled to choose different presubscribed carriers for both their intraLATA and interLATA toll calls.

The FCC's rules will require all ILECs to implement intraLATA and interLATA toll dialing parity using the "full 2-PIC" presubscription method. This method permits a customer to designate one Primary Interexchange Carrier (PIC) to carry her 0+ and 1+ interLATA calls (as allowed under interLATA and interstate equal access today) and a second PIC, which may be the customer's ILEC, to carry her intraLATA calls. Further, the FCC's order permits states to redefine the toll dialing parity requirement based on state, rather than LATA, boundaries where the state deems such a requirement to be pro-competitive and otherwise in the public interest. This provision permits the Texas PUC to implement 2-PIC equal access for in-state and out-of-state calling, as opposed to only intra- and interLATA calling.

The rates charged by ILECs for intraLATA long-distance service are regulated by the PUC. For ILECs electing incentive regulation under PURA95,¹²⁰ the rates for this service are capped for four years or more. The PUC does not regulate the rates of IXC's, but state law requires all IXC's operating in Texas to register with the PUC and to keep their current rates on file.

¹¹⁹ See Report and Order, FCC Docket No. CC 96-98.

¹²⁰ Currently, SWB and GTE have elected under PURA95 Subtitle H, and Sprint-United and Sugar Land have elected regulation under Subtitle I.

Although the PUC's IXC Data Request sought a breakdown of revenues between interLATA and intraLATA services, some of the large facilities-based carriers were unable to provide such a breakdown. Therefore, this report does not contain a reliable measure of the current intraLATA market shares of ILECs and IXCs.

The Commission has published a proposed rule (Project No. 16133) to implement intraLATA dialing parity in Texas. The proposed rule provides for dialing parity to be provided to Texas customers when Southwestern Bell is allowed to enter the interLATA market. Under the rule as proposed, the costs of implementing intraLATA equal access would be shared by ILECs and others in proportion to their share of the intraLATA toll market, measured in minutes of use. Costs would be recovered over a six-year period. Among the issues the Commission will consider in writing its final rule will be consistency with the FCC's rules on dialing parity, which were issued after publication of the PUC's proposed rule.

The issue of intraLATA dialing parity has also been raised as an issue in Docket No. 15711, a complaint filed by AT&T against GTE.¹²¹ That case, which was scheduled for hearing November 18, 1996, will consider the question of whether AT&T is authorized to receive 0+ and 1+ intraLATA calls, given that it was granted a Certificate of Operating Authority in certain parts of the state.

¹²¹ PUC Docket No. 15711, *Complaint of AT&T Communications of the Southwest, Inc. against GTE Southwest, Inc. and GTE Card Services, d/b/a GTE Long Distance*.

INTERLATA LONG DISTANCE SERVICES

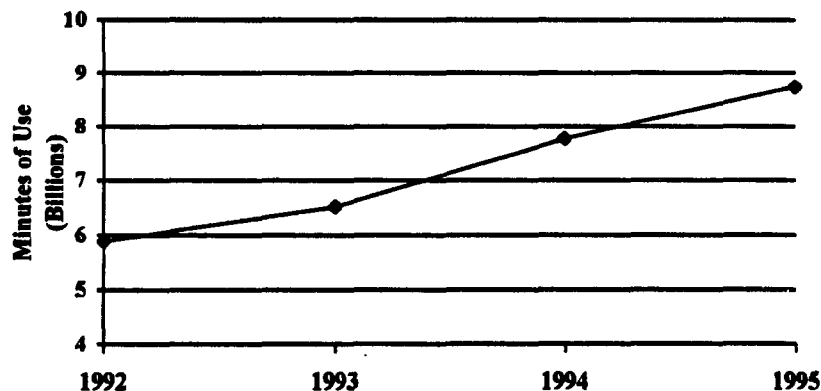
Interexchange Carrier Services

As portrayed by Figure 8.9, the long-distance service market in Texas is thriving, with minutes of use and carrier revenues increasing substantially more than the growth in the state's population. This growth reflects the fertile and competitive long-distance market coupled with the lack of entry barriers and the light-handedness of regulation in Texas.

More than 1,000 non-dominant telecommunications carriers are now registered with the Commission, and it is estimated that several hundred of those carriers currently provide intrastate long-distance service in Texas. Of that 1,000+ total, approximately 385 carriers are designated as operator service providers. Many, probably several hundred, of the registered carriers are either no longer operational, or are "shell" companies, representing limited competitive impact. The uncertainty surrounding the actual number of competitors stems from the minimal regulatory authority of the PUC over these non-dominant carriers.

The large majority of the non-dominant interexchange carriers are small resellers purchasing the transmission services of larger facilities-based carriers. Many of the resellers do not own their own switches (consequently the name "switchless resellers"), and merely provide an interface between end users and the underlying carrier(s), whose services the resellers buy at bulk-volume discounts. A reseller's profitability is highly dependent, therefore, on the volume discounts offered by the underlying facilities-based carriers.

Figure 8.9: IXC Calling Volume Growth - Texas Intrastate



Source: Responses to 1996 ILEC Data Requests

The Commission estimates that there were 22 facilities-based carriers providing intrastate long-distance service in Texas at the end of 1995.¹²² ILECs, which provide only intraLATA long-distance service, are excluded from this count. Among these 22, the four largest IXCs -- AT&T, MCI, Sprint, and LDDS-WorldCom -- accounted for over 91 percent of intrastate revenues in 1995 (see Table 8.25.) Though somewhat smaller than the share in 1992, this four-firm concentration ratio still indicates an extremely high degree of market power in this market, well above the 60 percent threshold used to characterize "tight oligopolies."¹²³ As seen in the chart, an alternative measure of market concentration, the Hirschman-Herfindahl Index (HHI), also yields a figure roughly twice as great as the 1800 minimum used by the Department of Justice to indicate a "highly concentrated" market.¹²⁴

Even if resellers are included in the evaluation of the long-distance market, the market-concentration indices are only marginally lower. For example, the 1995 four-firm concentration ratio based on intrastate local-switching access minutes of use purchased from Texas LECs by all telecommunications utilities (a group that includes many resellers) is 88.1 percent; similar evaluation using the HHI results in a "lower bound" of 3498.

Table 8.25: Concentration Ratios and Hirschman-Herfindahl Index for Interexchange Carriers - Texas Intrastate

	1992	1993	1994	1995
Hirschman-Herfindahl Index (based on carrier revenues)	4313	3941	3529	3574
Four-Firm Concentration Ratio (based on carrier revenues)	93.5%	93.3%	91.1%	91.1%
Hirschman-Herfindahl Index (based on minutes of use)	3518	3620	3534	3498
Four-Firm Concentration Ratio (based on minutes of use)	91.5%	90.9%	89.8%	88.1%

Sources: Responses to 1996 ILEC and IXC Data Requests

¹²² The estimate of 22 facilities-based carriers is based on responses to the commission's 1996 Interexchange Carrier Data Request.

¹²³ William G. Shepherd, *The Economics of Industrial Organization*, second edition (Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1985), p. 4.

¹²⁴ Department of Justice, *1992 Merger Guidelines*. The HHI is described in more detail in Appendix B.

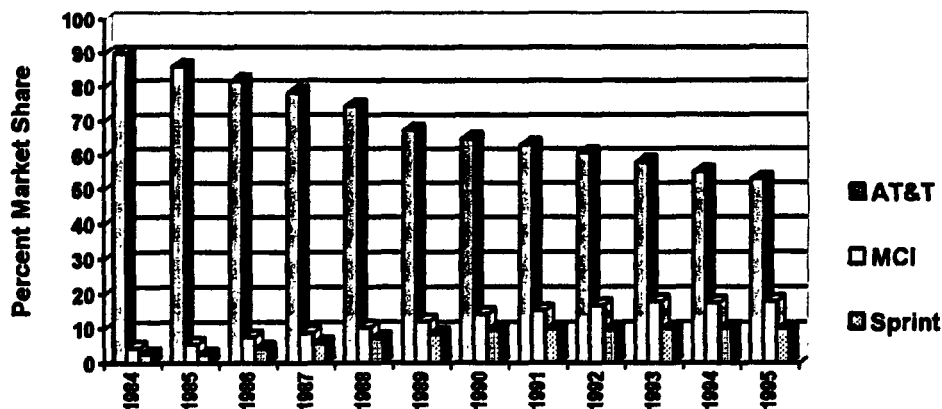
Table 8.26: Statewide Revenues and Market Calculations for Long Distance Facilities-Based Carriers

Services	Year	Industry Revenues	4-Firm Concentration Ratio	Hirschman-Herfindahl Index
MTS	1992	\$1,085,591,531	93.1%	4623
	1993	\$1,096,523,922	92.8%	4365
	1994	\$1,091,304,687	90.1%	4158
	1995	\$1,201,418,954	90.0%	4263
WATS-type	1992	\$103,963,659	94.5%	4436
	1993	\$143,333,661	95.7%	5983
	1994	\$196,763,789	94.8%	5404
	1995	\$214,297,201	95.4%	5597
Private Line	1992	\$104,334,685	98.2%	6545
	1993	\$113,941,974	97.9%	5669
	1994	\$114,365,620	95.5%	4584
	1995	\$130,486,378	95.2%	4047
800	1992	\$199,383,706	96.1%	4471
	1993	\$200,401,555	94.9%	4079
	1994	\$216,346,620	92.8%	3486
	1995	\$239,178,195	92.6%	3382
Total (including other services)	1992	\$1,501,657,734	93.5%	4313
	1993	\$1,562,826,910	93.3%	3941
	1994	\$1,626,491,610	91.1%	3529
	1995	\$1,792,425,244	91.1%	3574

Source: Responses to 1996 IXC Data Requests

The impact of increased customer ability to choose from among service providers can be illustrated by examining historical trends in the interstate long distance market. Immediately after divestiture, AT&T's share of the overall market for interstate switched minutes exceeded 80 percent. Now, eight years later, AT&T's market share has dropped to approximately 55 percent on a nationwide basis due to competition by over 700 competing interexchange carriers.¹²⁵ Sprint holds approximately 9 percent and MCI holds 18 percent of the interstate market, as shown in Figure 8.10.

¹²⁵ FCC Common Carrier Bureau, Industry Analysis Division, *Long Distance Market Shares, Second Quarter 1996*, September 1996.

Figure 8.10: Interstate Toll Service Market Shares 1984-1995¹²⁶

The nature of the tight oligopoly or highly concentrated long-distance market can be further illustrated by examining the history of rates for the three largest firms presented in Table 8.27. The interstate rates shown in this table are compiled by the FCC in October of each year, and reveal at least two noteworthy observations. First, the table shows that these rates generally decreased from 1984 until 1991, then have increased since that time. Second, the smaller carriers have tracked AT&T's prices -- upwards and downwards -- staying at or slightly below the AT&T price during each period.

This tracking phenomenon continues to be evident as AT&T, MCI, and Sprint have announced rate increases for interstate long distance services effective in December 1996. MCI announced rate increases of 4.9 percent, Sprint, 2 percent, and AT&T, 5.9 percent for its direct-dialed residential interstate calls. These increases did not affect customers enrolled in some of the IXCs' special calling plans such as "Sprint Sense" or AT&T's "One Rate" plans.¹²⁷

Critics of the IXCs' pricing policies argue that reductions in access charges by ILECs since divestiture have not been passed through to consumers in the form of lower long distance charges. The FCC has concluded, however, that since 1990, AT&T appears to be passing on the access savings to the end user.

Table 8.27: Rate History for 10-Minute Interstate 200-Mile Daytime Residential Long Distance Call

	AT&T	MCI	Sprint
1980	\$3.54	\$2.58	\$2.50
1981	4.07	3.39	2.90
1982	4.09	3.42	3.43
1983	4.09	3.42	3.43
1984	3.87	3.48	3.63
1985	3.66	3.48	3.45
1986	3.14	3.04	3.03
1987	2.56	2.51	2.52
1988	2.34	2.40	2.40
1989	2.30	2.15	2.25
1990	2.15	2.10	2.10
1991	2.10	2.10	2.10
1992	2.20	2.10	2.10
1993	2.40	2.40	2.40
1994	2.70	2.70	2.70
1995	2.70	2.70	2.70

Source: FCC Reference Book, November 1995, Appendix 10

¹²⁶ *Ibid.*

¹²⁷ *Telecommunications Reports*, December 2, 1996, p. 5-6.

They state, however, that the data does not allow conclusion on whether access charge savings are passed through equally and equitably to both business and residence customers and also to different types of customers within each class of service.¹²⁸

Comparisons among the competing carriers are made difficult in today's long distance market because of the plethora of discount plans available from the various carriers. Consumers can generally find a plan offered by one of the carriers that best suits the consumers' calling patterns, and achieve discounts below those shown on the tables of non-discounted rates.

**Table 8.28: AT&T Rate Comparison
(10-minute, 200-mile,
residential, daytime call)**

Year	Interstate	Intrastate
1984	\$3.87	\$4.20
1985	3.66	4.20
1986	3.14	4.02
1987	2.56	3.71
1988	2.34	3.71
1989	2.30	3.71
1990	2.15	3.71
1991	2.10	3.32
1992	2.20	3.27
1993	2.40	3.11
1994	2.70	2.84
1995	2.70	2.88

Sources: FCC Reference Book,
AT&T tariff filings

Table 8.28 presents a comparison of AT&T's rates for intrastate service (200 mile, daytime, non-discounted rates) within Texas to the rates charged for calls from Texas to another state. Interstate toll rates are consistently higher than intrastate calls of the same type.

A large portion of the cost of interexchange carrier message toll service consists of the access charges paid to ILECs for connecting to customers on the ends of the call. As was seen in Table 8.14, the cost of intrastate access is higher than interstate access, and that fact logically explains much of the difference in charges for in-state and out-of-state calling. As discussed earlier in this chapter, part of the differential between interstate and intrastate access charges is a direct result of the interstate subscriber line

charge paid by all customers on a flat-rated monthly basis.

Entry of Southwestern Bell into InterLATA Services

Since divestiture from AT&T in 1984, Southwestern Bell has been prohibited from providing telecommunications services between LATAs. With passage of FTA96, however, the Congress has provided Southwestern Bell and the other BOCs the opportunity to reenter this market once certain prerequisites are met.¹²⁹ BOCs must apply to the FCC for approval to provide interLATA service on a state-by-state basis. In

¹²⁸ FCC Common Carrier Bureau, Industry Analysis Division, *Reference Book: Rates, Price Indexes, and Household Expenditures for Telephone Service*, November 1995, Appendix 11.

¹²⁹ Bell Operating Companies may compete, however, in interLATA markets *outside* of their current operating regions at enactment of FTA96, without satisfying any prerequisites.

reviewing such applications, the FCC will evaluate, in consultation with the U.S. Department of Justice and the appropriate state regulatory commission, whether the following requirements¹³⁰ have been met:

- the BOC has completed at least one interconnection agreement with a facilities-based competitor; or
- no facilities-based competitor has requested interconnection by December 8, 1996, and the state commission has approved an acceptable BOC statement of generally available terms and conditions; and
- the company has completed a 14-point "competitive checklist."

The "competitive checklist"¹³¹ includes:

- 1) interconnection;
- 2) nondiscriminatory access to network elements;
- 3) nondiscriminatory access to poles, ducts, conduits, and rights-of-way owned or controlled by the BOC at just and reasonable rates;
- 4) local loop transmission from the central office to the customer's premises, unbundled from switching or other services;
- 5) local transport from the trunk side of a wireline LEC switch unbundled from switching or other services;
- 6) local switching unbundled from transport, local loop transmission or other services;
- 7) nondiscriminatory access to 911 and E911 services, directory assistance services, and operator call completion services;
- 8) white-pages directory listings for customers of the new entrant;
- 9) nondiscriminatory access to telephone numbers for assignment to the new entrant's customers (until numbering administration guidelines are established);
- 10) nondiscriminatory access to databases and associated signaling necessary for call routing and completion;
- 11) interim number portability through remote call forwarding, direct inward dialing (DID) trunks, or other comparable arrangements (until number portability guidelines are established);
- 12) nondiscriminatory access to such services or information as are necessary to allow the requesting carrier to implement local dialing parity;
- 13) reciprocal compensation arrangements;
- 14) and telecommunications services available for resale.

¹³⁰ FTA96 §271.

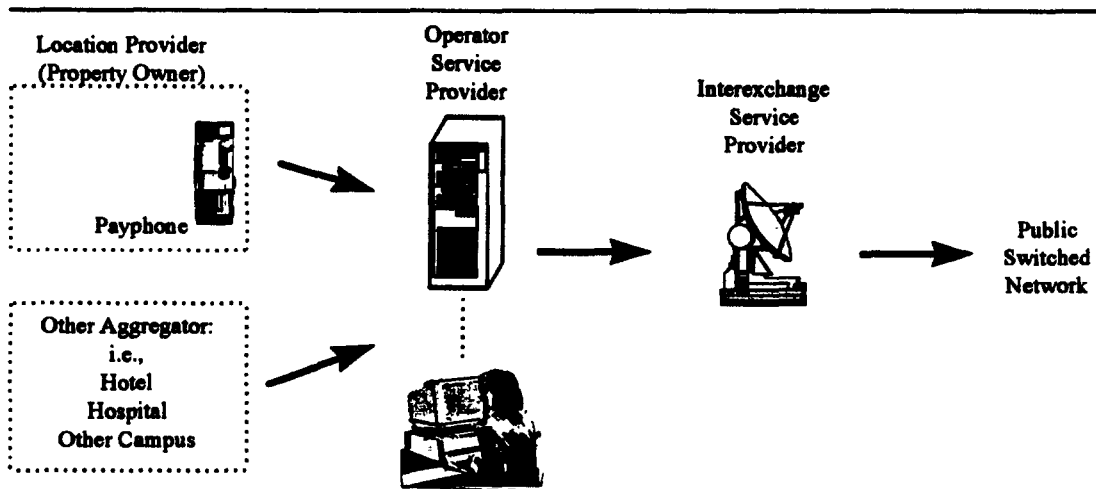
¹³¹ FTA96 §271(c)(2)(B).

It is unknown when Southwestern Bell will apply to the FCC to provide interLATA services originating in Texas. It is safe to assume, however, that Southwestern Bell will apply for authorization during this next biennium, and the PUC will be able to discuss the application in the 1999 edition of this report. In the meantime, the PUC has initiated Project 16251 as a first step in preparing for SWB's interLATA entry.

OPERATOR SERVICES

Following the divestiture of the BOCs from AT&T and the introduction of privately owned pay telephones, a sizable number of competitive operator service providers (OSPs) were created to take advantage of the new market of aggregating and processing calls from payphones. While most OSPs are associated with payphone service providers, an OSP may have a contractual agreement with another type of aggregator, such as a hotel, hospital, apartment complex, or other entity providing telecommunications service to its patrons.

Figure 8.11: Illustration of Operator Service Provider in Network



According to PURA95, an operator service is any "service using live operator or automated operator functions for the handling of telephone service, such as toll calling via collect, third number billing, and calling card services."¹³² It follows that an OSP is any person or entity that provides operator services. In this strict sense, most LECs and IXC's are OSPs. Approximately 385 non-LEC businesses in Texas are designated as OSPs in the PUC's registration records of non-dominant carriers.

Consistent with the competitive payphone and OSP marketplaces, the PUC has been granted only limited authority by the Legislature to regulate these types of service

¹³² PURA95 § 3.052, PUC Subst. R. § 23.55(b).

providers. However, PURA95 § 3.052 authorizes the PUC to require that certain consumer protections be included in contracts with “each entity through which [the OSP] provides service,” and further authorizes the PUC to promulgate rules needed to protect the public interest.

The PUC adopted rate caps on the services provided by payphone service, which directly affect OSPs through their contractual relationship with the payphone providers. These caps, codified in PURA95 §3.2625(e) and explicitly outlined in PUC Subst. R. § 23.54 (g)(1)(G), apply to pay telephone calls that use a credit card, calling card, or live or automated operator assistance. The caps authorized by the PUC are shown in Table 8.29:

Table 8.29: Rate Caps for Intrastate Long Distance and Operator-Assisted Calls at Texas Pay Phones:

Mileage	1st Minute	Additional Minutes
0-10	\$.2975	\$.2625
11-22	\$.3150	\$.2975
23-55	\$.3325	\$.3150
56-124	\$.3675	\$.3500
125-292	\$.4025	\$.3850
>292	\$.4200	\$.4025
<u>Operator Service Charges</u>		
Customer Dialed Calling Card Station		\$2.50
Operator Dialed Station		\$3.75
Person to Person		\$4.50
Long Distance Access Fee		\$1.00

Although the PUC is not authorized to set maximum rates on OSP charges for calls from entities that are not payphone providers, PURA95 requires OSPs to provide informational materials for telephones having access to the OSP service. PURA95 further authorizes the PUC to require an OSP to include, in its contract with entities through which it provides service, the requirement that a user be allowed by that entity to access the local exchange carrier operator and other carriers as desired.

Emerging Competitors and Services

CELLULAR AND PCS SERVICES

Wireless technology is playing a key role in the communications revolution. The need to increase public safety was key to the genesis of today's rapidly growing wireless communications industry, including cellular and PCS services.¹³³ The birth of cellular and PCS technology can be traced back to 1946, when AT&T engineers used multiple low-power transmitters to "hand off" calls from transmitter to transmitter as customers moved around in their vehicles.¹³⁴

Wireless services such as cellular and PCS are exempted from PUC regulation by PURA95 § 3.002(9), as are all "television stations, radio stations, community antenna television service, radio-telephone services that may be authorized under the Public Mobile Radio Service rules of the [FCC], or commercial mobile service providers, ... other than such radio-telephone services provided by wire-line telephone companies."¹³⁵ It is useful, however, to examine the provision of some of these services, as cellular, PCS, cable TV systems, and others may have a significant impact on telecommunications competition in Texas.

This section details the growth of the wireless communications industry. An overview of cellular and PCS services is presented. Some attention is also given to the potential for wireless services to be used in high-cost, rural areas. Finally, this section outlines the potential for wireless to compete with the landline market in the future.

The growth of the wireless phone industry has reached towering levels in a relatively short period of time. In 1984, fewer than 100,000 consumers used cellular services nationwide. The cellular industry added nine million new subscribers between mid-year 1994 and mid-year 1995.¹³⁶ Subscriberhip to wireless phone service reached 33.7 million in December 1995, a 46 percent increase in new users over mid-year 1994.¹³⁷ Double-digit growth is expected through the end of the century.¹³⁸

Aggregate service revenue for cellular services increased from \$10.9 billion in 1993 to \$14.2 billion in 1994, while 1995 service revenue totaled \$8.7 billion at mid-

¹³³ Cellular Telecommunications Industry Association (CTIA), *The Wireless Factbook* (Washington, D.C., Spring 1996), p. 2.

¹³⁴ *Ibid.*

¹³⁵ PURA95 § 3.002 (9).

¹³⁶ Mobile Communications Division of Markley-Taylor Associates - Economic and Management Consultants International, Inc. (MTA-EMCI), *The U.S. Cellular Marketplace: 1995* (Washington, D.C., 1995), p. 1.

¹³⁷ CTIA, *op. cit.*, p. 3.

¹³⁸ *Ibid.*

year.¹³⁹ The industry is seeing revenue growth at the same time the average customer bill is declining. In 1989, the average monthly cellular phone bill was \$87; this rate declined to approximately \$52 at mid-year 1995.¹⁴⁰



Profile of the Average Cellular User in 1995

- ◆ 40.2 years old.
- ◆ Household income of \$65,600.
- ◆ Professional who has attended/completed college.

Mass Market Appeal

Increased demand and lower costs for wireless services has shifted industry niche marketing from wealthy, high-powered professionals on the run to lower priced, mass consumer service for everyone. The cellular industry hopes to create brand loyalty with residential customers who are the ILECs' core economic base.

Table 8.30: Top Ten Cellular Markets in Texas¹⁴¹

State Rank	Nat'l Rank	Cellular Market	Block "A" Provider	Block "B" Provider
1	9	Dallas / Fort Worth	AT&T Wireless	SWB Mobile
2	10	Houston	BellSouth, AT&T Wireless	GTE Mobilnet
3	33	San Antonio	AT&T Wireless	SWB Mobile
4	75	Austin	AT&T Wireless	GTE Mobilnet
5	81	El Paso	Bell Atlantic, NYNEX	GTE Mobilnet
6	101	Beaumont / Port Arthur	Bauce Communications	GTE Mobilnet
7	112	Corpus Christi	U.S. Cellular	SWB Mobile
8	128	McAllen / Edinburg	Century Cellunet	SWB Mobile
9	160	Killeen / Temple	AT&T Wireless	360° Communications
10	161	Lubbock	KETS Partnership	SWB Mobile

¹³⁹ MTA-EMCI, *op. cit.*, p. 1.

¹⁴⁰ *Ibid.*

¹⁴¹ CTIA, *op. cit.*, pp. 45-46.

What is PCS?

PCS is the acronym for Personal Communications Services. The FCC defines PCS "as a family of mobile or portable radio communications services which could provide services to individuals and business, and be integrated with a variety of competing networks."¹⁴² PCS technology is similar to digital cellular in that both transport conversations by digital signals and offer greater security of conversations. However, because PCS transmissions are broadcast at a higher frequency on the radio spectrum and because PCS is digital, it can accommodate a larger number of conversations at one time. Because of the higher frequency and digital format, a PCS signal weakens more quickly than analog cellular, which operates at a frequency of 800 MHz.

PCS Providers and Competition with Cellular

The first PCS network was implemented in late 1995. New PCS services are expected to expand the wireless industry and compete with existing cellular providers and other wireless companies. PCS' entry into the wireless marketplace is expected to spur competition with feature-rich, low-cost communications services and impact innovation in technology, marketing, and pricing. PCS will offer a wide range of wireless mobile technologies, chiefly two-way paging and cellular-like calling services, that are transmitted at lower power and higher frequencies than cellular services.

To stay competitive, cellular providers will respond to PCS by lowering prices while offering competing services and features to potentially new mobile telephony subscribers and their installed base.¹⁴³ The introduction of PCS may actually help the cellular market by encouraging new service enhancements and reducing mobile phone service rates. As mobile services evolve, PCS will not be a radical departure from traditional cellular service but rather a low-cost, high-mobility service, offering many of the services that cellular can currently provide or will be able to provide over time.¹⁴⁴ Many cellular providers are upgrading to digital services from their existing analog networks. Digital service provides an increase of three to five times the current capacity over analog networks as well as the ability to offer additional features.

The industry's concept of PCS assumes two broad segments:

- ◆ **High Mobility Telephony Services:** This service category is expected to be the dominant segment of PCS. These high mobility, wide-area roaming services will be similar to those which cellular operators currently provide, although enhanced features likely will be added. Components of those services include vehicular-based mobile voice services, mobile data, mobile messaging, and hybrid voice and data services.

¹⁴² Telecommunications Industries Analysis Project, Presentation at the February 1996 NARUC Meeting, (Washington, D.C.), p. 3.

¹⁴³ MTA-EMCI, *op. cit.*, p. 316.

¹⁴⁴ *Ibid.*

- ◆ **Alternative Local Loop Bypass Service.** Some PCS carriers will offer differentiated services focused on providing basic telephone services in and around the home. There is likely to be significant overlap between the high mobility and local loop subscriber. The mobile and local loop services may be used by the same subscriber.

Are PCS markets different from cellular markets?

PCS market areas are different from cellular markets. The FCC selected a different definition of the market areas for PCS, based on the Rand McNally 493 Basic Trading Areas (BTAs) and 51 Major Trading Areas (MTAs) geographic boundaries. Rand McNally developed these geographic definitions, which are larger than the cellular Metropolitan Statistical Areas/Rural Service Areas (MSA/RSA) definitions, to represent economically integrated areas.¹⁴⁵ The larger market sizes reflect the experience of regional usage among most wireless products today. MTAs are larger than BTAs, and BTAs respect MTA boundaries. Both MTAs and BTAs respect county borders. The FCC has set up rules that limit the involvement of cellular players in the PCS industry in order to increase that amount of competition in the mobile telephony marketplace.

Some PCS areas are larger, and encompass major economic centers as a way to encourage the development of regional and national services. PCS technology began as a digital application, as opposed to cellular technology, which began as an analog technology and is evolving to digital. Digital network upgrades are a necessity for cellular operators. Broadband PCS providers must be able to serve a substantial amount of the population in the PCS markets within five years. PCS networks are being built in major markets of the country to compete with long-standing cellular markets. This competitive influence is accelerating cellular companies' effort to upgrade their networks to compete with the coming PCS competition.

PCS allows existing communications companies to fill in gaps in their existing cellular markets, and gives these companies the opportunity to expand their markets nationally. It also provides them the opportunity to enter new markets. Consumers benefit from the introduction of PCS because it offers a potentially cheaper alternative to cellular and local telephone service. PCS services also offer greater potential for two-way paging service and advanced wireless services.

¹⁴⁵ Telecommunications Industries Analysis Project, February 1996 Presentation, p. 17.

Growth in Wireless Services

In 1995, an estimated 14,000 new jobs were created by wireless carriers in the United States. This number is likely an underestimation because it does not include job growth for the build-out for PCS that is occurring nationwide. Cell sites throughout the nation increased by 26 percent to 22,663 in 1995.¹⁴⁶ Texas has witnessed its share of job growth from this industry. The Dallas area, for example, expects to gain 1,500 telecom jobs from Ericsson and Nortel, two telecom rivals centered in Richardson's telecom corridor.

Cellular telephones and PCS phones are the most important part of the wireless market for Nortel and Ericsson.¹⁴⁷ Ericsson expects its total employment to be 4,000 at the end of 1996, a 25 percent increase over 1995. Kathy Egan, an Ericsson representative, said, "It's because of the explosive growth in wireless communications."¹⁴⁸

Leading Wireless Operators in Texas

AT&T Wireless, a subsidiary of AT&T, is the leading cellular operator in the nation and in Texas. AT&T Wireless is licensed to serve approximately 9.6 million people in Texas and 68.3 million in the United States.¹⁴⁹ AT&T Wireless successfully outbid other providers for PCS licenses in the El Paso-Albuquerque markets.

AT&T Wireless Services beat out rival Southwestern Bell Mobile Systems to become the first cellular provider in the nation to launch a package of new telephone and digital services, called AT&T Digital PCS. The new phones, made by Nokia's plant in Fort Worth, combine cellular service with Caller ID, voice mail and paging. Gary Fleming, President and General Manager of AT&T's Cellular Division, believes that Caller ID capability with cellular service benefits average consumers by giving them more control over their cellular air time bill.¹⁵⁰ With Caller ID, customers can now control their incoming calls by choosing not to take a call. The new digital technology also offers increased privacy for subscribers because digital technology makes it virtually impossible for others to listen while the user talks. The technology debuted in 1996 in twelve Texas counties including Collin, Dallas, Denton, Ellis, Grayson, Hood, Johnson, Kaufman, Parker, Rockwall and Wise.

GTE Mobilnet is licensed to provide wireless service in a geographic area populated by 6.7 million people in Texas and 49.3 million nationwide. In the recent PCS license auctions held by the FCC, GTE Mobilnet did not secure any markets in Texas.

¹⁴⁶ John Healey, "Towering Controversies," *Governing*, February 1996, p. 38.

¹⁴⁷ *Dallas Morning News*, July 5, 1996.

¹⁴⁸ *Ibid.*

¹⁴⁹ CTIA, *op. cit.*, pp. 55 - 57.

¹⁵⁰ Interview with Gary Fleming, President/GM of AT&T Wireless Services, KKDA-AM 730, Dallas, Texas, 27 June 1996.

GTE is making its presence known, however, with its Tele-Go™ Phone Service, introduced in the Dallas/Fort Worth Metroplex in March 1995. It combines a high-quality cordless phone with the transportability of wireless technology. Tele-Go™ is integrated with a subscriber's normal home phone service and operates on the standard 800 megahertz cellular spectrum. This service offers consumers the following attributes that differ from the business person's cellular service:

1. The technology is simple from the customer's perspective.
2. Lower barriers to entry.
3. Service coverage area is in the community of interest.
4. Priced so as to meet the proper value range.
5. Integrated with current telephone service.

The Tele-Go™ offer is premised on two basic operations: 1) "Tele-Go Home" - when the handset is within the home range of the base station, the Tele-Go phone works as a cordless extension of the regular home telephone service; 2) "Tele-Go Extended" for when the phone leaves control of the base station and works as a cellular phone separate from the home phone. If the handset is outside of the Tele-Go home range (250 feet) cellular rules and rates will apply.

Wireless Co. L.P. is another significant competitor in the wireless market in Texas. The company's position in local and wireless markets is enhanced by its partnering with Sprint and three cable TV companies. The cable TV companies can provide the infrastructure and network to access a prime residential customer base. Wireless Co. L.P. secured PCS licenses for the markets of Dallas-Fort Worth and San Antonio, which offer 12.6 million potential subscribers.

Southwestern Bell Mobile Systems - offers coverage over 100,000 square miles throughout Texas and Oklahoma in the Home Advantage Network.

Primeco L. P. - PCS Primeco secured PCS licenses in the Dallas-Fort Worth (includes Lubbock, Waco, Midland, Odessa, Amarillo, Wichita Falls and San Angelo), Houston (includes Galveston, Bryan, Victoria, Port Arthur, Beaumont, Lufkin and all interconnecting highways), and San Antonio markets (including Austin, Brownsville, Eagle Pass, Laredo, and Corpus Christi), with 17.8 million subscribers. One of Primeco's partners, AirTouch Communications, provides paging services in Austin, San Antonio, Houston, Dallas-Fort Worth, El Paso and Midland/Odessa.

Table 8.31: Sample Cellular Rate Plans - Austin Calling Area

Provider	Rate Plan	Monthly Access	Peak Rate	Minutes Included (local airtime)	Service Activation
GTE	Business Saver	\$79.95	\$.31	200	\$49.95
AT&T Wireless	Business	\$57.99	\$.32	200	\$49
SWB Mobile Systems (resale)	Speak Easy Plus	\$69.95	\$.36	175	\$45

Note: All plans require a twelve-month contractual commitment.

Wireless Technology and Rural Areas

Cellular coverage would be limited without build-out in rural markets. At one time, industry analysts believed that cellular service would not be viable outside the top 100 MSA markets. The state of Texas is comprised of miles of high-cost, low-density areas where wireless technology could be used to serve rural customers.

As wireless companies shift their marketing strategy to one-stop shopping for all portable services, including mobile, cellular, paging, data transmission and video, rural areas are viable markets if costs continue to drop. In a state with more rural land mass than urban, fixed wireless services may be more affordable for the provider than basic landline service.

The wireless local loop is a viable option for rural ILECs for several reasons. "The typical amount of time required for a landline local loop system to become cash positive is 10 to 12 years. The typical amount of time for a wireless local loop system to become cash positive is four to six years."¹⁵¹

Maintaining cell sites is less labor-intensive than maintaining wired connections into multi-locations. Under current usage levels, one cell site has the average capacity of supporting 10,000 customers with only two to three persons maintaining it. However, as the level of usage per customer or the number of customer increases, the need for additional cell sites increases. ILECs can also see savings in time used to set up cell sites. The time of deployment saved from setting up cell sites at the level of 1:10,000 subscribers as opposed to digging trenches and laying cable in a service area equates to massive revenue gains from providing service at an earlier date.

"To provide basic dial tone, Poka Lambro has an investment of approximately \$3600 per customer in the wireline business versus less than \$500 per customer utilizing cellular (wireless) technology. We plan to offer mobile and LEC type services with our PCS licenses."

Mickey Sims, CEO
Poka Lambro Telephone Co-op Inc.

¹⁵¹ Casey Freymuth, "Wireless Local Loops: An Economic Overview," *X-Change*, July-August 1996, p. 46.

In rural settings, wireless local loops provide access to mobile telephone service and a new source of revenue for rural ILECs. The pre-subscriber cost of establishing a traditional wireline system is \$1,000.¹⁵² For the wireless system to compete with established systems, it is generally accepted that the cost per subscriber needs to be somewhere in the \$500 to \$700 dollar range.¹⁵³ Maintaining high-quality landline telephone service is a financial obstacle in high-cost rural areas. But using wireless loops in fixed systems and wireless technology is a cost-effective alternative for areas where fixed access service is either insufficient or non-existent.¹⁵⁴

Wireless Phones and 911 Technology

Nationwide, 95 million 911 calls are made each year, or 260,000 every day, on average.¹⁵⁵ These calls are typically routed by local exchange carriers to Public Safety Answering Points (PSAPs) staffed by professionals trained to assist callers in need of emergency assistance. The State Advisory Commission on Emergency Communications estimates that wireless callers account for approximately 25 to 30 percent of these calls.

Wireless phones currently lack the automatic location identification technology that will allow administrators of PSAPs to locate them in responding to emergency calls for assistance. Over the last decade most 911 systems and PSAPs have been upgraded to enhanced 911 (E911), which allows the telephone number of the phone used for the call to be passed to the ILEC. A database usually maintained by the ILEC is then used to selectively route the call to the most appropriate PSAP and to transmit the location of the telephone based on ILEC records. E911 utilizes Automatic Location Identification (ALI), which:

- ◆ Permits rapid response in situations where callers are disoriented, disabled, unable to speak, or do not know their location.
- ◆ Permits the immediate dispatch of emergency assistance to the address of the wireline phone.
- ◆ Reduces errors in reporting the location of the emergency.
- ◆ Allows for call-back in the event the call is disconnected.

Although 911 was originally developed for wireline telephones, wireless customers nationwide made approximately 18 million calls to 911 and other public service numbers in 1994. Many cellular calls to 911 are "good Samaritan" calls made to report car accidents or other incidents requiring police action. The advent of PCS will increase the number of mobile phones and wireless 911 calls.

¹⁵² *Ibid.*, p.47.

¹⁵³ *Ibid.* p. 48.

¹⁵⁴ *Ibid.*

¹⁵⁵ FCC Docket No. 94-102, Released July 26, 1996, p. 3.

Wireless carriers currently provide access only to basic 911 service, not the advance features of E911. The mobile nature of wireless technology creates complexities for providing even basic 911 service. For example, a wireless 911 caller may not be a subscriber of the wireless provider with coverage in the area and therefore 911 calls may be blocked. In Texas, wireless carriers have reciprocal agreements to terminate all 911 calls. Some cellular carriers may have roaming agreements with other providers to prevent blocking of 911 calls. Another obstacle involves selective routing of calls to the appropriate PSAP, which routing is complicated by the fact that a cellular caller is often moving and during the transmission the call may be handed off to more than one cell site. Thus identifying the location of a wireless carrier presents new technological and policy issues.

On June 12, 1996, the Federal Communications Commission, in Wireless Bureau's Docket 94-102, adopted a plan jointly proposed by the Cellular Telephone Industry Association and the public safety agencies to provide location technology for wireless phones. Under Phase I, not later than 12 months after the effective date of the rules adopted in this proceeding, covered carriers must have initiated the actions necessary to enable them to relay a caller's Automatic Number Identification (ANI) and the location of the base station or cell site receiving a 911 call to the designated PSAP. Not later than 18 months after the effective date of the FCC rules adopted, such carriers must have completed these actions.

Under Phase II, within five years after the effective date of the rules adopted in this proceeding, covered carriers are required to achieve the capability to identify the location of a mobile unit making a call within one-tenth of a mile.

The caveat to these two developments is that the technology and funding resources must be available for these to occur. The FCC ruling clarifies that wireless phone companies will implement the new technology if requested to do so by local or state governments, who will provide funding to do so. Funding for this technology is an issue that local and state governments, in cooperation with the wireless carriers, will have to address. It remains unclear whether the technology will be developed within the time frames contained in the FCC rules.

Other Policy Issues in the Wireless Market

Most of the issues surrounding entry and rate regulation of PCS services are identical to those facing the existing cellular industry. With the advent of competition and merging of traditional communications industries, new solutions will be needed to address policy issues. The Telecommunications Industries Analysis Project Workgroup identified the following policy issues for consideration:

1. Jurisdictional issues where states are preempted with regard to market entry and rate regulation.
2. Consumer protection and quality of service concerns.
3. Facilities siting (towers/zoning) issues.

4. Bundling of PCS services with wireline.
5. Impact of MTA's/BTA's overlapping state boundaries on pre-emption issues.

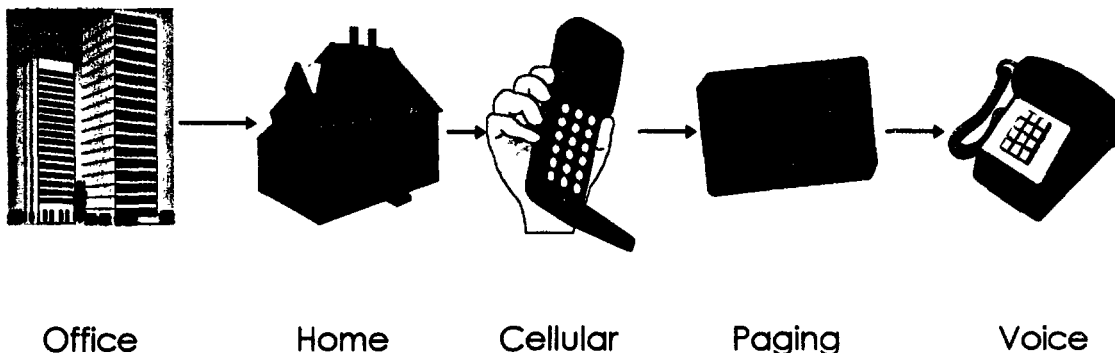
What impact will the wireless industry have on the landline telephone market?

Industry consultant Joseph Kraemer believes that wireless services will play an increasingly prominent role in telecommunications:

From the viewpoint of a[n] [I]LEC, wireless service providers will increasingly be competitors in all core [I]LEC business lines, including access, toll, and local service. For example, under the terms of the Telecommunications Act of 1996, cellular and PCS providers will have the ability to provide bundled packages of local and long distances services without offering the presubscription option that incumbent landline carriers will be required to offer.¹⁵⁶

Despite this "competitive edge" for the wireless industry, ILECs have benefited from cellular and other wireless services. ILECs have seen increased revenues due to cellular traffic, most of which is intraLATA mobile to fixed. There also has been an increased utilization of wireline network infrastructure which support all telephony providers.

The "golden age" of cellular, characterized by easy access to capital, minimal requirements for high-quality service, and high operating margins, will change as the wireless market becomes more competitive. As new PCS competitors enter the wireless market, restructuring will occur in terms of intense price competition, massive expenditures on advertising, and branding position. Some of these characteristics are already evident in the way MCI is marketing its *MCI One* services. The essence of *MCI One* is the use of a one-number routing system, which provides a subscriber with a programmable 800 number, enabling callers to contact the subscriber wherever he or she may be.



¹⁵⁶ Kraemer, *op. cit.*, p. 21.

According to Kraemer, more emphasis will be placed on premium customer levels, shortened time-to-market for new services as a competitive advantage, and increased efforts to find merging partners with services, such as paging, long distance and residential data, that can be packaged with wireless services.

Wireless service by itself may not mean immediate direct competition for wire-based ILEC services to residential and business customers. However, when wireless service are bundled with video, long distance, paging, cable data etc., the wireless industry then has the potential to compete for customers with the ILEC. Eventually (post year 2000), wireless services will most likely begin to achieve some degree of competitive parity and begin to threaten the ILECs' wire-based services directly.¹⁵⁷

THE ROLE OF CABLE TELEVISION IN TELECOMMUNICATIONS

Cable Television Providers

According to the Cable and Television Factbook, approximately 180 cable television service providers offer service in over 1700 communities in Texas. These providers serve approximately 3 million homes, which is roughly half of the homes passed, with over 80,000 miles of coaxial cable or optical fiber facilities. These cable television service providers are not regulated by the PUC. However, they are expected to be a significant force in competition for local exchange services within the next few years. This section describes the potential for competitive entry, and some of the issues involved in provision of local telecommunications services by cable television providers.

Current Wirebound Providers

The 1995 *Report To The Texas Legislature On The Scope Of Competition In Telecommunications Markets* observed that cable television systems were not directly competing with most telecommunications services offered by ILECs other than by providing what were deemed competitive exchange services through associations with CAPs and other providers. For the most part, that situation is still true. However, with FTA96, and, to some extent, PURA95, the competitive landscape has opened up dramatically. Until now, cable service providers have been precluded from entering the telecommunications market. Today, cable companies are adamant that they will begin providing local telephone service in many states, including Texas, and they have taken

¹⁵⁷ *Ibid.*, p. 23.

significant steps toward that end.¹⁵⁸ Media service providers of all types (long-distance providers, cable companies, wireless providers, ILECs) are free (or on the verge of being free) to move into other areas of media service provision. Both telephone companies and cable companies are searching for the best way to become an effective provider of multimedia services. There are, of course, regulatory and technological hurdles that both need to clear before being legally and physically able to provide multimedia services.¹⁵⁹

According to *Telephony* magazine, the ideal new media distribution network must have three elements: 1) it must support the transmission of broadband signals suitable for broadband video and high-quality graphics; 2) it must allow customers to choose their programs independently, regardless of time of day or what others are choosing; and 3) it must be bi-directional, so that users can send program or database selection commands to the central site.¹⁶⁰ Both the ILECs and the cable companies are capable of putting together the ideal new media distribution network providing they enhance or upgrade their traditional systems. Some ILECs have created an instant network by simply acquiring a cable company or interest in a cable company.¹⁶¹ The issue for the cable companies, if they do not merge with an ILEC but intend to upgrade their facilities in order to compete with the ILECs, is whether they will be able to attract enough of a customer base to make their efforts worthwhile.

Reports among industry observers concerning the competitive strength of cable companies are mixed. While some see cable companies as the weakest of the potential competitors, others see the cable companies as the only real competition. Cable companies are viewed as viable competitors in the provision of local telecommunications service for two primary reasons. First, the cable plant, if upgraded to be telephony-capable, would be capable of providing video, voice, and high-speed data services, while an un-upgraded ILEC network can only provide voice and low-speed data services. The coaxial cable facilities, which comprise the majority of the network, are capable of carrying voice, video and data. The minimum network upgrade would include adding upstream control channels, user selectivity or switching capabilities, and additional network management upgrades. Second, research has been conducted which shows that in the world of growing telecommunications needs, consumers would be interested in a

¹⁵⁸ For example, Time Warner Communications has obtained a COA and has in place a hybrid fiber/coaxial (HFC) network architecture capable of providing voice, video, and data services to requesting customers. They have also entered into an interconnection agreement with Southwestern Bell.

¹⁵⁹ This section of the report will not discuss legal requirements in detail but suffice it to say, any entity wishing to provide local telecommunications service in Texas must obtain from the PUC a CCN, a COA, or an SPCOA.

¹⁶⁰ Saltwick, Steve, "Competing or Complementary Technologies?", *Telephony*, June 10, 1996.

¹⁶¹ For Example, U.S. West acquired Continental Cablevision and has a substantial investment in Time Warner, NYNEX is working with Viacom to explore interactive entertainment, has an overbuild project with Time Warner and supports Liberty Cable in video delivery to high rises in New York City, and Southwestern Bell has purchased several cable companies. As is detailed below, some RBOCs have already or are considering teaming up with wireless cable companies to compete in the multimedia services market.

bundled package of cable, data, and dialtone services or "one-stop shopping."¹⁶² Take one and two together and it would appear that an upgraded cable network could provide a significant threat to an existing ILEC network. This conclusion assumes, of course, that the ILECs are not upgrading their systems, which is not at all the case.

There are several reasons why cable companies are viewed as less than formidable competition to the ILECs. First, and most significantly, just as cable companies are able to enter the telecommunication markets, telecommunications providers are able to enter the home entertainment video market. In order to be able to provide "one-stop shopping," both ILECs and cable companies must upgrade their networks. Telcos are preparing for this, and other opportunities in media provision by taking steps to upgrade their physical plant to be capable of providing services they were previously incapable of providing.¹⁶³ While it is true that telcos have the onerous task of upgrading the actual wire or cable which makes up the bulk of their physical network, which will take considerable time, telcos have a wealth of experience in switching, network management, customer relations, quality control, and a host of other intangible yet highly relevant aspects of service provision that have taken decades to develop. In markets where there is only one provider of identical bundled services, that provider will likely take interested customers. In markets where there are competing providers of the bundled services, a typical ILEC or RBOC has advantages such as name recognition, a long-standing relationship with customers, and a history of reliable service.¹⁶⁴ Lack of name recognition and problems such as cable network outages and unresponsive customer service are probably why one study reported that only 4 percent of the survey participants would trust a cable company to provide the multiple services, whereas approximately 75 percent said they would buy multiple services from AT&T or their local RBOC.¹⁶⁵

¹⁶² EDS Communications & Electronics Consulting, "New Telecom Act Will Speed Formation of Keiretsu-like Information, Entertainment, and Communications Giants says A.T. Kearney Study" (*Kearney Study*), Press Release, April 22, 1996. In fact, the study shows that 32% of survey participants said they definitely would buy a telecommunications package that included two or more services and 33% said they may.

¹⁶³ Telcos are doing this by, as mentioned earlier, merging with cable companies, or upgrading their systems from the current twisted copper system to fiber optic or HFC. It should be noted that LECs in Texas have not placed as much HFC or other video-capable plant.

¹⁶⁴ It is key that the bundled package of services be identical and identically priced. Of course, if one package of bundled services includes elements that another does not, or if the packages of bundled services are differently priced, those factors will have bearing on customer choice.

¹⁶⁵ EDS Communications & Consulting, *op. cit.* It should be recognized, however, that a company with a name like "Time Warner" may have an easier time attracting customers than a lesser known cable company. Also, the *Kearney Study* noted that the typical telecommunications consumers between now and 2005 will be individuals born after 1960 who are computer literate, used to communicating electronically, and not loyal to dominant communications vendors. This could work in the favor of cable companies.

Wireless Cable Providers

There are two types of service that one might refer to as “wireless cable.” The first is multichannel, multipoint distribution service or MMDS, where signals are transmitted by microwave from towers to small rooftop antennas. The second is digital broadcasting satellite or DBS, where communications satellites in geostationary orbits transmit multiple channels of video programming directly to homes equipped with receiving antennas or dishes. MMDS typically has been the type service provided in remote or rural areas, while DBS is becoming available in urban as well as rural markets. Wireless cable companies, by themselves, pose no immediate threat of competition to the ILECs for several reasons. By its technical nature, wireless cable television technology involves one-way transmission, and any upgrade to two-way would be prohibitively expensive. ILECs, however, could enter into partnerships with wireless cable television firms to provide “one-stop-shopping” with both voice-grade and broadband or entertainment services to their customers. Wireless cable, while not posing a stand-alone threat of competition to the RBOCS or other ILECs, may be extremely helpful to the telecommunications providers in terms of keeping up with cable companies that are capable of providing bundled multimedia services.

Observations on Cable Companies

Cable companies have the potential to be competitors in the market for local telephone service, however, it is likely that only the largest and wealthiest cable companies will be able to succeed in a competitive market. Smaller cable companies or wireless cable companies may have to merge with other service providers in order to have any piece of the telecommunications market or, in some instances, to stay in business at all. ILECs are preparing to enter the multimedia market, either by upgrading their networks or developing deals with video and data service providers, and their bundled service offers could take significant business away from the stand-alone cable companies. What the ILECs enjoy are name recognition and a long-standing reputation for good customer service, intangibles that may keep customers with their incumbent telecommunications provider despite the availability of a high quality service from another provider such as a cable company. Cable companies wishing to compete in the local market will be beholden, to an extent, to the ILECs. Issues cable companies will face when dealing with ILECs in the competitive marketplace are fair and friendly interconnection agreements and competitive-neutral treatment from the ILECs from whom they will need to purchase or receive services.

These competitive challenges faced by cable companies (or any competitor for that matter) highlight the need for specific regulatory programs that apply competitive safeguards and generally allow the regulators to be the referees in the high-stakes telecommunications competition of the coming decade.

INTERNET ISSUES: VOICE OVER NET

The Internet is commonly described as a “network of networks.” Each network is independent but each network communicates with the Internet using the same language.¹⁶⁶ These networks are connected to the Internet through routers in the same way each residence receives its mail through a local post office. The router determines whether the destination for a data message is within its local area.¹⁶⁷ If yes, the router determines the best way to move the data to its destination and sends the message on its way. Once the message reaches its destination, it is up to the receiving parties network or individual computer to get the message to the person receiving it; i.e., the postal worker places the letter in ones mailbox, but it is up to the individual to grab the letter and hand it to the addressee.

The Internet began as the “ARPAnet,” which was developed through the Department of Defense through numerous university grants.¹⁶⁸ The Internet has grown beyond “ARPAnet”, however, through experimentation, usage, and technological advancement. Software advancements have allowed even casual residential users to participate in this communications option.

The future of audio over the Internet is impossible to predict. The Internet has the potential to transmit audio like any other medium. For example, AudioNet, which bills itself as “The Broadcast Network on the Internet” carries radio broadcasts for 85 stations.¹⁶⁹ With AudioNet, a radio station that normally is restricted to a small geographic market, can broadcast world-wide. Traditional notions of market structure must be rethought regularly. Although it is unclear where technological advancements in this area will lead the industry, it is almost certain that tomorrow the industry will look different from what it looks like today.

Impact on Telecommunications Competition

Internet telephony or Voice Over Net (VON) is a relatively new technology for placing long distance calls. VON allows a person to use his/her computer to make long distance calls over the Internet to anywhere in the world for the cost of a local telephone call.¹⁷⁰ In 1995, the number of VON users per week climbed to approximately 30,000.¹⁷¹

¹⁶⁶ Hoffman, *Internet & World Wide Web*, IDG Books Worldwide, Inc. (1995) p.10.

¹⁶⁷ *Ibid.* at 11.

¹⁶⁸ *Ibid.* at 13

¹⁶⁹ For further discussion of radio over the Internet, see “Entrepreneurs Hope the New Medium Can Save the Old,” *New York Times*, September 23, 1996, p. C7.

¹⁷⁰ Hakala, “Voices on the ‘Net/You Now Can Talk Long-distance Overy Your Computer, but a Telecommunications Lobbyist is Fighting to Disconnect the Service,” *Newsday*, April 28, 1996, p. A51.

¹⁷¹ *ABC Evening News*, July 17, 1996.

The number of users is expected to climb to 10 million by the year 2000.¹⁷² VON should be kept in perspective, however. Although recovery of costs by telecommunications providers is discussed as an issue relating to VON, the issue of cost recovery pertains to all Internet use. Every time someone engages in Internet access to reach a location that would ordinarily be considered interstate or interLATA, access or toll costs are being bypassed. What makes VON different is that it is more directly competitive to traditional long distance, whereas e-mail and non-verbal Internet research is only indirectly competitive with traditional long distance.

Emergence of Voice Over Net

The Internet is designed for sending data. To send voice over the Internet, analog voice signals must be converted to digital signals. A number of companies, most notably VocalTec, have developed software that takes the digitized voice from a computer sound card, compresses it, and sends the compressed information over a computer modem.¹⁷³ In February of 1995, VocalTec was the first company to market VON technology that was reasonably usable.¹⁷⁴

In bypassing traditional long distance, customers can realize substantial savings. For example, during a recent ABC network news report the price of a call from Long Island, New York, to London, England, over the Internet was compared to traditional long distance. For a six minute call on traditional long distance, the call would have cost \$4.76. However, using VON, the price was reported to be that of a local telephone call, eleven cents. [These price comparisons, of course, do not include the cost of the computer hardware and software.] If Internet pricing remains unchanged, VON will likely emerge as a viable alternative to traditional long distance as technological limitations are overcome.¹⁷⁵

Technological improvements have been coming to VON at a furious pace. However, certain limitations are inherent to VON technology and are likely to remain barriers for the near term. These limitations include the fact that both participants to a VON call must have a high-end multimedia computer, Internet access, and compatible software. Additionally, both participants to a VON call must be logged on to the Internet at the same time. This requires calls to be prearranged.

Overcoming Obstacles

Once one has made the computer hardware and software investment, VON is superior to traditional long distance with regard to price. Traditional long distance remains far more convenient, most notably because VON users must prearrange their

¹⁷² *Ibid.*

¹⁷³ Bulkeley, "Hello, World! Audible Chats on the Internet," *Wall Street Journal*, February 10, 1995, p. B1.

¹⁷⁴ *Ibid.*

¹⁷⁵ Mine, "Voice Over Net," *X-Change*, May-June 1996, p. 42.

calls. Also, voice quality for VON does not rise to the levels of traditional long distance. VON, for example, experiences delays of up to four seconds.¹⁷⁶ As VON becomes more user friendly, all other things being equal, its ability to compete with traditional long distance will vastly improve.

In early 1996, full-duplex capabilities were introduced to better approximate natural conversations.¹⁷⁷ Prior to this development, VON was similar to CB radio in that code is necessary to hand over the conversation, i.e., by saying "over and out" at the end of transmission.¹⁷⁸ Lucent Technologies, Inc. has introduced VON software that would allow Internet conversations to proceed as if the participants are on a speakerphone. Consequently, a party can be heard without having to wait for the other person to stop talking.¹⁷⁹

By the technological nature of VON, caller ID is provided on every call. Voice messaging, call waiting, and call forwarding are expected to be available in the next generation of software. The issue of platform incompatibility is also being addressed. A group of over a hundred vendors, including Microsoft and Intel, have agreed to develop an "open platform built around industry standards to enable interoperable data, voice and video communications over the Internet between incompatible operating systems."¹⁸⁰ This step is vital to the competitiveness of VON, because customers will not switch from one long distance carrier to another if the long distance carrier requires everyone a person calls to have a particular brand of telephone.

In what may amount to the final step toward making VON broadly used, VocalTec has introduced a technology called Voice Gateway.¹⁸¹ Voice Gateway promises to allow VON users to call non-Internet users. If Voice Gateway becomes a successful technology, traditional long distance may see substantial lost revenues.

Niche Markets

As MCI proved in the traditional long distance market over twenty years ago, niche markets exist that will allow new competitors to make a profit. Providers of VON technology argue that VON is such a technology. NetSpeak introduced VON software

¹⁷⁶ *ABC Evening News*, July 17, 1996. In another example discussed in the *Austin American-Statesman*, a call from a hotel room in Copenhagen to South Carolina, the caller's cost using VON was 50 cents per minute (40 cents for the hotel connection charge and ten cents per minute for the Internet provider). Had the caller used traditional long distance, the call would have cost \$5.00 for the first minute and \$1.50 for each additional minute plus the 40 cents per minute hotel charge. "Cut the Cost of Long-distance Calls Via the Net," *Austin American-Statesman*, July 27, 1995, p. E7.

¹⁷⁷ *Ibid.*, p. 43.

¹⁷⁸ *Ibid.*

¹⁷⁹ "Lucent Introduces Product to Improve Calls on Internet," *Wall Street Journal*, September 18, 1996, p. B6.

¹⁸⁰ *Ibid.*

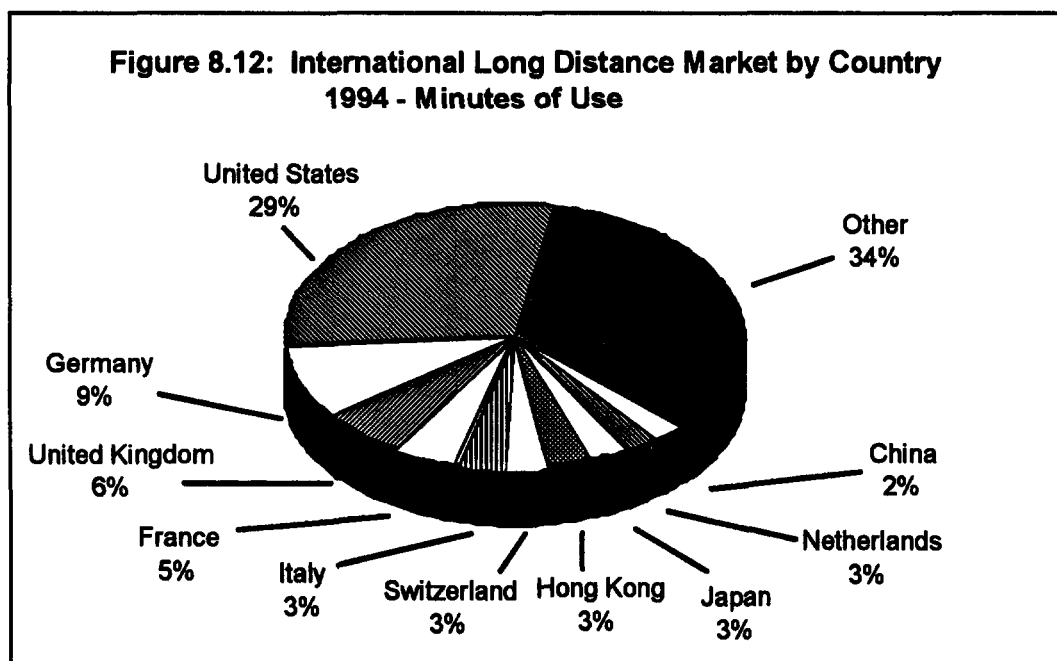
¹⁸¹ *Ibid.*

targeted for business call centers. This software includes call routing and management features.¹⁸²

International teleconferencing is considered a likely market for VON. First, teleconferences must be prearranged regardless of the technology. Second, because VON requires a meeting place on the Internet for parties to meet, individuals should be able to make conference calls more easily than traditional long distance service, thereby bypassing the high cost of hiring third-party conference services, as well as long distance charges.

Potential Growth of VON

VON has the potential for significant impact on the competitive provision of long distance service. Until VON technology becomes more accepted, VON is likely to have its greatest impact in the international long distance market because the per minute price for international long distance calls greatly exceeds the price of long distance prices within the United States. The average price per minute for an international long distance call is approximately \$1.10,¹⁸³ and the global international long distance market is a \$60 billion dollar market.¹⁸⁴ Because a VON user can avoid paying \$1.10 per minute for the price of a local telephone call, tremendous growth in the use of VON is expected.¹⁸⁵ Similarly, the developers of VON technology have a large potential market for their products once their products are more technologically competitive with traditional long distance telephone



¹⁸² *Ibid.*

¹⁸³ *Ibid.*, p. 45.

¹⁸⁴ *Ibid.*

¹⁸⁵ See, e.g., "Cut the Cost of Long-distance Calls Via the Net," *Austin American-Statesman*, July 27, 1995, p. E7.

service. The Chairman of Netscape Communications Corp. has argued that if the Internet evolves into a two-way, real time communications system for data, "the ordinary telephone system becomes in some sense replaced by the Internet."¹⁸⁶

Where the Industry Sectors Stand

ACTA

Although VON technology is still in its infancy, the America's Carriers Telecommunications Association (ACTA) is concerned about this technological development. It has petitioned the FCC for a declaratory ruling concerning VON, stating that its members have an "interest in and authority over interstate and international telecommunications services using the Internet."¹⁸⁷ The Clinton administration appears ready to weigh in against the regulation of VON.¹⁸⁸

The comments filed with the FCC in that proceeding by various industry groups are discussed in the following sections:

Long Distance Companies

Long distance companies, especially small long distance companies represented by ACTA, argue that VON service providers should either be banned until they file interstate tariffs or, at a minimum, regulated as telecommunications service providers pursuant to FTA96. AT&T concedes that the term telecommunications service providers would not apply to computer software vendors because they are not "carriers" under FTA96.

A number of long distance carriers suggest that telephony over the Internet should not be exempt from access charges. These carriers offer various legal arguments to support this point; however, the thrust of the argument is that once VON is subject to access charges:

1. there would be a level playing field for Internet providers and long distance providers, and

¹⁸⁶ Reuters, "Net Will Replace Phones, Netscape Chairman Predicts," *The New York Times*, Cybertimes section, at URL:<http://www.nytimes.com/web/docsroot/library/cyber/week/0703netscape.html>, July 3, 1996 (addressing a conference on the future of the Internet in Luxemburg).

¹⁸⁷ FCC Common Carrier Bureau, DA 996-414, 1996 FCC LEXIS 1404 (March 25, 1996). Charles Helein, Counsel for ACTA, has warned that without governmental action, VON will cause a disaster for large long distance companies, long distance resellers, and local exchange companies. Rodger, "White House Supports Internet Phone Service," *Ziff-Davis Wire*, May 22, 1996.

¹⁸⁸ Rodger at p.1. Larry Irving, President Clinton's National Telecommunications and Information Chief, in a letter, told the FCC that the FCC's decision in the 1980s not to regulate the Internet was correct and nothing in FTA96 changes that decision.

2. failure to apply access charges to Internet providers when handling voice calls forces “[I]LECs, long distance providers, [and/or] subscribers and customers ... to bear the cost associated with ‘free service’ over the Internet.”¹⁸⁹

Computer Industry

VocalTec Ltd. and Quarterdeck Corporation, Internet software developers, took the strongest position against FCC regulation. They argued that the FCC lacks jurisdiction over software and that FTA96 reflects Congressional intent to exclude Internet-related communications and services from the FCC’s authority.¹⁹¹ There argument focuses on FTA96 §223, which states, “Nothing in this section shall be construed to treat Interactive computer services as common carriers or telecommunications carriers.”¹⁹²

CompuServe, Inc. noted that even if VON was subject to FCC regulations, that it is practically impossible to apply access charges based on VON usage because Internet providers lack the ability to distinguish between voice and data applications.¹⁹³ A number of other Internet-related companies, including Netscape Communications Corp., argued that the Internet, in its unregulated form, spreads the benefits of competition to consumers, as consumers have seen an explosion of communications alternatives at competitive prices.¹⁹⁴

“If the Internet continues to become as widely deployed as at the rate it’s going today, in 5 to 10 years all telecommunications will be based on what the Internet becomes.”

**- Jim Clark, Chairman
Netscape Communications¹⁹⁰**

¹⁸⁹ See “Comments of the National Telephone Cooperative Association” in FCC Docket RM-8775. See also the comments of AT&T, ACTA, Telecommunications Resellers Association, and U.S. Telephone Association in FCC Docket No. RM-8775.

¹⁹⁰ *Ibid.*

¹⁹¹ See the “Comments” of VocalTec, Ltd. and Quarterdeck Corp. in FCC Docket No. RM-8775.

¹⁹² FTA96 §223.

¹⁹³ See the “Comments” of CompuServe, Inc. in FCC Docket No. RM-8775. The inability to distinguish between voice and data transmission relates to the point made in the introduction of this section. VON is of utmost concern to long distance companies because of its ability to directly substitute for traditional long distance. As to the use of telecommunications infrastructure, VON is no different than any other computer-related use of the telephone lines. This point is exemplified by the comments of the American Telegram Corp. in FCC Docket No. RM-8775. American Telegram Corp. urged the FCC to regulate Internet service providers, such as CompuServe, because the sending of e-mail messages is tantamount to a commercial telegram services.

¹⁹⁴ See, e.g., the “Comments” of Netscape Communications Corp., Voxware, Inc., and Insoft, Inc. in FCC Docket No. RM-8775.

What VON means to the Texas Telecommunications Industry

The major impact of VON on telecommunications in Texas is that as customers bypass long distance access rates, a potential funding mechanism for universal service may become unavailable. Long distance revenues and access charge revenues comprise a large portion of the ILECs' revenue streams, as discussed earlier in this chapter. With VON, there is the potential for the elimination of toll access charges even though the costs for the utilities would remain mostly unchanged. Future pricing policy in Texas must recognize the potential impact of VON when implementing long term plans.

A second impact of VON, as with other Internet services, is the potential for increasing the use of the telecommunications infrastructure. Internet providers generally provide flat rate prices, although there is some likelihood that providers of the fiber backbone, which makes the wide use of the Internet possible, will push for usage-sensitive pricing.¹⁹⁵ With increased traffic on the local telephone exchanges, there is the potential for increased congestion and the need for further infrastructure expansion. If such expansion is necessary, a key policy issue will erupt: whether to allow recovery of these costs by the dominant local exchange carriers through average rates or to allow usage sensitive local rates to place the cost of congestion on the heaviest users of the local exchange.

TELEPHONE SERVICE BY ELECTRIC UTILITIES

Electric utilities often have been ignored in the debate on competition in the telecommunications market. This section explains why electric utilities and their fiber-optic infrastructure pose a competitive challenge to ILECs in the provision of local exchange service. Through innovative projects, some electric utilities have used their fiber-optic capacity to provide interactive energy management services and telecommunications services to consumers.

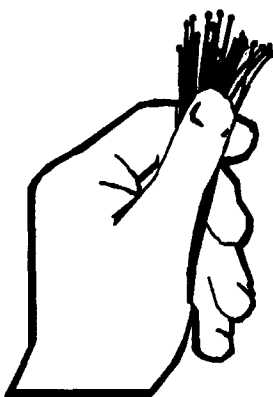
In the past, the Public Utilities Holding Company Act of 1935 (PUHCA) restricted the core business activity of most utilities to energy production. FTA96 lifted some of the PUHCA restrictions and allows registered utility holding companies (large gas and electric utilities) to offer telecommunications and information services if they establish subsidiaries that provide only telecommunications, information or related services.¹⁹⁶ Utilities may diversify into telecommunications and information services through separate affiliates

¹⁹⁵ *Ibid.*, p. 44.

¹⁹⁶ Jon Healey, "Telecommunications Highlights," *Congressional Quarterly*, February 1996, p. 410.

called “exempt telecommunications companies” (ETCs) and by adhering to various restrictions.¹⁹⁷

FTA96 also requires a utility to provide access to its poles, ducts, conduits, or rights-of-way not only to cable TV operators but also to telecommunications carriers, excluding ILECs.¹⁹⁸ State regulators and the Federal Energy Regulatory Commission (FERC) have the power to review transactions between a power subsidiary and a telecommunications subsidiary to determine whether the costs should be included in the power company’s rates.¹⁹⁹ These new telecom subsidiaries are required to comply with FCC regulations.



Several electric utilities are positioned to compete with ILECs because they have been developing fiber-optic networks. The electric utilities are using interactive fiber-optic networks as an efficient way to bill customers in remote areas without sending out meter readers. This innovative approach increases profitability by cutting costs and helps the electric utility remain competitive.²⁰⁰

Electric utilities have created this “accidental highway” of fiber-optic cable economically by installing fiber-optic cable inside existing ground wires. Baltimore Gas and Electric began competing against the local phone company when in 1991, it leased its excess fiber-optic cable capacity to others, including a major long distance carrier, that wanted to bypass their local telephone companies.²⁰² But Baltimore Gas and Electric is not alone, larger companies like Entergy, Southern Company, and now Central and South West (CSW) have over the years, installed miles of fiber-optic cable as part of their operations.

Electric Industry Statistics:²⁰¹

- ◆ 2,187 public power companies
- ◆ 970 rural electric coops
- ◆ 274 private investor owned electric utilities
- ◆ 18,000 fiber-optic miles
- ◆ 43,000 private land mobile radio transmitters
- ◆ 7,000 point to point microwave hookups in place

By 1994, utilities had only laid approximately 10,000 miles of fiber-optic cable compared to 45,000 miles by the cable companies and 50,000 miles by telephone companies, but utilities continue expanding their network as shown in Table 8.32.²⁰³

¹⁹⁷ Deloitte & Touche Consulting Group, *The Telecommunications Act of 1996: A Comprehensive Overview of the New Law* <<http://www.dttus.com>>, version current on August 21, 1996.

¹⁹⁸ *Ibid.*

¹⁹⁹ *Congressional Quarterly*, p. 410.

²⁰⁰ *Ibid.*

²⁰¹ National Association of Regulatory Utility Commissioners, *Utility Regulatory Policy in the United States and Canada: Compilation 1994-1995* (Washington, D.C.: NARUC, 1995), p. 381.

²⁰² Manjeet Kripalani, “Three on a Pole,” *Forbes*, February 1994, p. 45.

²⁰³ *Ibid.*

Table 8.32: Select Electric Utilities' Fiber-Optic Infrastructure ²⁰⁴					
Company	Revenues (billion)	Miles Installed	Year Installed	Installation Costs (million)	Additional Miles Planned
Southern Co.	8.5	1,600	1986	90	600
Entergy Corp.	4.5	700	1989	30	700
Houston Industries	4.3	220	1987	9	NA
Baltimore Gas & Electric	2.7	230	1986	5.8	50
Public Service Co. of Colorado	2.0	150	1985	6 (est.)	450

The Electric Power Research Institute (EPRI) believes that electric utilities should consider a more aggressive approach in adding fiber-optic cable to their already far-reaching power delivery infrastructure. EPRI also believes that utilities should partner with other investors and capitalize on their own competitive opportunities. Some utilities have accomplished this by leasing unused fiber capacity to competing cable and telephone companies.²⁰⁵

William Dahlberg, chairman and chief executive officer of the Southern Company, the giant Atlanta based utility, noted that his company has about 2,000 miles of its own fiber-optic cable in place on its poles and the capacity for two-way communications links with nearly 3.5 million customers.²⁰⁶

With cable and telephone companies spending hundreds of billions of dollars to create a nationwide fiber-optic network, why would the electric utilities want to spend billions to triplicate the network? The answer is *energy management*. By using two-way interactive meters, consumers are empowered to monitor and control their energy consumption, using power more efficiently.

An added benefit for the electric utilities is that their fiber-optic networks provide a means for additional revenue because they can use the network's excess fiber capacity to provide telecommunications services or lease it to competing cable and telephone companies.

"You don't think about the electric utility business being a telecommunications system but Southern Company's fiber-optic infrastructure makes it the nation's second-largest telecommunications company."

William Dahlberg, President
and CEO, Southern Company

²⁰⁴ *Ibid.*

²⁰⁵ *Ibid.*

²⁰⁶ *The Wall Street Journal*, June 19, 1995.

Electric Industry Assets for Telecommunications Entry

According to a recent presentation before the National Association of Regulatory Utility Commissioners,²⁰⁷ electric utilities possess a number of valuable assets for entry into provision of telecommunications services:

- **System Familiarity** - Electric and gas utilities currently constitute the third largest telecommunications group in the U. S. with extensive communications systems using networks that incorporate a variety of media - fiber optics (18,000 fiber miles), coaxial and copper cable, microwave radio, and land mobile radio services.
- **PCS Tower Sites** - Electric utilities own or share approximately 40 million utility poles. These are ideal microcell tower sites for new PCS entrants. Electric utilities also already have thousands of towers for their in-house wireless systems already zoned for radio transmission.
- **Spectrum** - Microwave incumbents operating at 2 GHz must move out and allow PCS auction winners in. However, these PCS winners can either cut a deal with an incumbent carrier or wait up to four years for the incumbent to clear out. Other spectrum owned by electric utilities makes them a natural partner for out-of-region PCS owners of the same spectrum.
- **Rights-Of-Way** - Competitive LECs, Long Distance Companies, or PCS can use the electric utilities' rights-of-way and conduits.
- **Penetration** - Electric utilities have customer lists, billing, metering, and collections capability. They also have virtually 100 percent customer penetration, while ILECs have only about 94 percent, AT&T less than 60 percent, and Cellular only about 10 percent. Joint offerings could push up penetration for the non-power services.
- **Dark Fiber Offerings**: Electric utilities already have a big toehold in the communications business, leasing dark fiber to existing carriers.
- **Reputation for Reliability** - Electric utilities have a reputation for reliability exceed only by that of the telephone companies.
- **Power Supply / Possible Communications Conduit** - Electric utilities already have power lines going to each house and pole, to support fiber based broadband services, PCS microcell tower sites, and possibly communications services. Novell and other providers have been working on a 2 megabyte per second local network aptly named, "power line carrier system."

Pilot Projects

In 1995, **Central and South West Corp. (CSW)** initiated its Customer Choice and Control (CCC) program. CSW mounted small computers from First Pacific Network to customer homes. These boxes, hooked into a vast network of cable, allow the

²⁰⁷ Ramsay, James Bradford, *Telecommunication Opportunities for Electric Utilities*, presentation to NARUC Staff Subcommittee on Communications, July 1996.

company to address operational efficiency requirements, manage capital expenditures, improve customer service and provide new business opportunities. For customers like Ethel and Peter Arguindegui of Laredo, this meter reading device allows the customer to monitor the costs of using the washing machine, hot water heater and air conditioner at various times of the day.

By participating in the CCC customer controlled load management program homeowners see price signals reflecting the utility's marginal costs of energy transmitted to a "customer energy monitor" in their home.²⁰⁸ Customers can use this information to set up an energy strategy to shift the use of their largest appliances when rates are cheaper.²⁰⁹ This load shift benefit has resulted in ten percent reduction in energy costs for participating customers.²¹⁰ By shifting customer usage to off peak hours, a utility can optimize the use of its existing infrastructure and defer the need for significant investment in generation facilities and transmission and distribution physical plant.²¹¹

Florida based **Teco-Energy, Inc.** is another company moving into the telecommunications market. Teco has implemented an energy management system similar to CSW's. Its system, complete with an IBM PowerPC chip, lets customers use the system to call up voice, video and data services.

Glasgow Electric, the municipality owned electric utility of Glasgow, Kentucky was not covered under the federal restriction that limited private utility activity. Glasgow Electric has been using its wires to offer telecommunications services to 2,500 customers since 1989.²¹² The utility has branched out into providing cable TV services and telephone service over its lines. Recently, the Glasgow Electric used its wires to set up a high-capacity web linking local schools and offices with 200 homes and allowing them to circulate email across the city, creating its own mini-Internet.²¹³

"The dark horse to wire homes to the information superhighway will be electric utilities. Their power grids can carry television signals, phone service or home-security systems."

Wall Street Journal
June 19, 1995

Although PURA95 §3.251 prohibits municipalities or municipal electric systems from offering for sale to the public, either directly or indirectly through a telecommunications provider, **Central and South West** and its subsidiary **CSW Communications** have maneuvered into the fast lane of the information superhighway. CSW Communications was granted a franchise by the Austin City Council to build a high-

²⁰⁸ Central and South West Corporation's Marketing Department and <<http://www.csw.com/ccs/html>>, version current on August 27, 1996.

²⁰⁹ *Ibid.*

²¹⁰ *Ibid.*

²¹¹ *Ibid.*

²¹² *Ibid.*

²¹³ *Ibid.*

speed, two-way telecommunications network in the city.²¹⁴ The proposed fiber-optic network will provide advanced telecommunications services for 544,000 city residents. This network will be available for lease to other service providers who plan to offer competitive telecommunications and data services.

The Next Step for Electric Utilities

With the FTA96's removal of restrictions on utilities business activities, utilities have been given the green light into telecommunications services. Electric companies can no longer be overlooked as a potential telecommunications competitor. Moreover, the electric utilities' fiber-optic network provides a competitive advantage from various perspectives. The network provides a means for energy management and cost savings, two-way communications network into customers' homes, and additional revenue potential by leasing excess capacity. Telecommunications carriers may want to pay attention to these potential competitors because they can give customers what they want: two-way, broadband communications channels, choice and control.

²¹⁴ Central and South West Corporation, "Austin City Council Grants Telecommunications Franchise for CSW Communications," News Release, August 1, 1996.

CHAPTER 9

UNIVERSAL SERVICE IN TEXAS

Definition of Universal Service

The definition of universal service in telecommunications has its foundation in the Communications Act of 1934,²¹⁵ even though it is not specifically defined in that statute. The Act's preamble calls for a "rapid, efficient, nationwide and world-wide wire and radio communication service with adequate facilities at reasonable charges." The term historically has been interpreted to mean the universal availability of adequate service at affordable rates. The Public Utility Regulatory Act of 1995 (PURA95) includes a policy directive that the Public Utility Commission of Texas (PUC or Commission) should protect and maintain "the wide availability of high quality, interoperable, standards-based telecommunications services at affordable rates."²¹⁶

**Universal
Availability
of
Adequate
Service
at
Affordable
Rates**

During the past 30 years or more, the universal availability of telephone service has increased markedly, with subscribership rising to a current level in excess of 93 percent of the nation's households. Such increases have been accomplished through a number of factors, including support payments and subsidies, low-interest construction loans, and lifeline rate programs, as well as the declining cost of telephone service relative to other goods and services.

The emergence of competition within local exchange telecommunications markets has focused attention on the impact of existing universal service programs on competitors and service subscribers. The existence of improperly targeted support programs and implicit subsidies has led to the concern that all carriers may not be competing on a "level playing field."

In analyzing the status and future direction of universal service programs, one becomes painfully aware of the subjectivity of the definition of the beast under study. How does one define "universal availability," "adequate service," or "affordable rates"? The Federal Communications Commission (FCC) and state regulators are attempting to resolve the meanings of these terms as they try to balance the benefits of universal service with the benefits of competitive choice for consumers.

²¹⁵ 47 U.S.C. §151.

²¹⁶ PURA § 3.001.

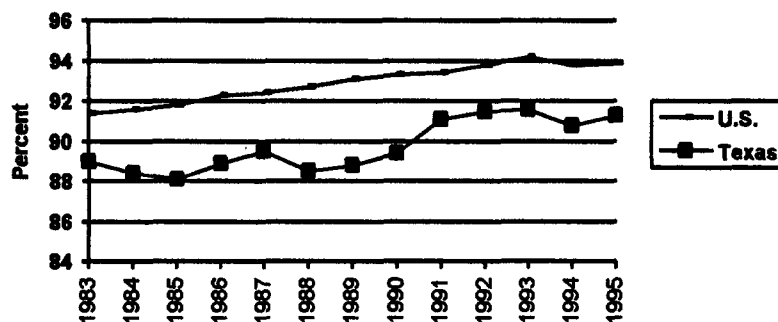
Some parties in the regulatory process argue that the goals of universal service have already been reached, and that the existing support arrangements can be discontinued without serious social impact. Others insist that subsidies must be continued to allow current low-income subscribers and those living in high cost rural areas to receive affordable service. Yet other parties support the expansion of universal service definitions to include two-way interactive broadband services. We will describe, if not resolve, some of these issues in the following sections.

Universal Availability

TELEPHONE SUBSCRIBERSHIP IN THE UNITED STATES AND TEXAS

The number and percentage of households that have telephone service represent the most basic measures of the extent of universal service.²¹⁷ The most widely used measure of telephone availability is the percentage of households with telephone service -- sometimes called a measure of telephone "penetration." Continuing analysis of telephone penetration statistics allows us to examine the aggregate effects of regulatory actions on households' decisions to maintain, acquire or drop telephone service. Telephone penetration statistics are collected by the Bureau of the Census under contract with the FCC. This information is published in an FCC report, "Telephone Subscribership in the United States," which is generally released a few months after the end of each four-month survey period.

Figure 9.1. Percentage of Households with Telephone in Unit



Source: FCC's *Telephone Subscribership in the United States*, September 1996

²¹⁷ Portions of this discussion are excerpted from the FCC's Monitoring Report in CC Docket No. 86-339; May 1996.

Census Bureau figures for July 1996, the most recent data available, show that the percentage of households subscribing to telephone service on a nationwide basis is 93.9 percent, while for Texas, the level is 91.4 percent.²¹⁸ As can be seen from Figure 9.1, Texas historically has had a consistently lower subscribership percentage than the nation as a whole.

The FCC's report, *Preparation for Addressing Universal Service Issues: A Review of Current Interstate Support Mechanisms*²¹⁹ reported that census-based subscribership data as well as surveys of nonsubscriber attitudes and behavior regarding telephone service, suggest that:

- *the highest rates of nonsubscribership are among the young, the unemployed, and minority households with children;*²²⁰
- *most nonsubscribers are former subscribers, many of whom have been disconnected because of inability to pay toll charges;*²²¹
- *the vast majority of nonsubscribers are renters and persons in non-permanent living situations;*²²²
- *many low-income minority households choose not to have telephone service in order to avoid being reached by the outside world.*²²³

On July 20, 1995, the FCC issued a Notice of Proposed Rulemaking (NPRM) requesting comment on specific proposals to enhance subscribership.²²⁴ Several areas of inquiry addressed customer control of the long-distance use of their telephones. In

²¹⁸ FCC Common Carrier Bureau, Industry Analysis Division, *Telephone Subscribership in the United States*, September 1996.

²¹⁹ Portions of this discussion are excerpted from a report by the FCC Common Carrier Bureau, *Preparation for Addressing Universal Service Issues: A Review of Current Interstate Support Mechanisms*, February 23, 1996.

²²⁰ Jorge Reina Schement et al., *Telephone Penetration 1984-1994*, pp. 10-11; and Alexander Belinfante of FCC Common Carrier Bureau, Industry Analysis Division., *Telephone Subscribership in the United States* (1994), p. 4. (Data through July 1994.)

²²¹ Field Research Corp., *Affordability of Telephone Service*, pp. S-7, S-19 to S-20 (1993) (survey funded by GTE and Pacific Bell, available from Pacific Telesis, Federal Regulatory Relations, 1275 Pennsylvania Ave., Suite 400, Washington, DC 20004).

²²² Milton Mueller and Jorge Reina Schement, Rutgers Univ. Project on Info. Policy, *Universal Service from the Bottom Up: A Profile of Telecommunications Access in Camden, New Jersey* (1995), p. 7; Scott J. Rubin, *Telephone Penetration Rates for Renters in Pennsylvania* (1993), p. 1 (available from Pennsylvania Office of Consumer Advocate, 1425 Strawberry Square, Harrisburg, PA 17120); New York State Dep't of Pub. Serv., *Universal Service Issues—A Staff Draft Report* in Module 1 Case 94-C-0095—The Telecommunications Competition II Proceeding (May 16, 1995), p. 31 (available from New York State Department of Public Service, Three Empire State Plaza, Albany, NY 12223); and Field Research Corp., *op. cit.*, note, p. S-1.

²²³ Mueller & Schement, *op. cit.*, p. 9.

²²⁴ *Amendment of the Commission's Rules and Policies to Increase Subscribership and Usage of the Public Switched Network*, Notice of Proposed Rulemaking, 10 FCC Rcd 13,003 (1995).

addition, the FCC discussed several methods of providing service to underserved populations. The Subscribership NPRM also invited comment on methods of measuring subscribership, efforts to educate consumers about available options, and streamlined procedures for determining eligibility for assistance under existing programs.²²⁵ To date, the FCC has not issued any specific orders in the subscribership proceeding, although much of the information that they have collected is likely to be used in their deliberations on the restructuring of the interstate Universal Service Fund.

Adequacy of Service

The second foundational aspect of universal service is that telephone service must be adequate. The public convenience and necessity is not served well by service that is not reliable and continuous. There is a public expectation that a Texas resident should be able to obtain a basic set of services anywhere within the state, and that those services should be provided and maintained at an acceptable level.

The basic set of services is defined in PURA95 §3.002 as including flat rate residential and business local exchange service, including primary directory listings, tone dialing service, access to operator services, access to directory assistance services, access to 9-1-1 service where provided by a local authority or dual party relay service. In addition, basic service includes the ability to report problems seven days a week, and the ability of consumers to receive lifeline and tel-assistance services for which they qualify. Further, the PUC is given authority to determine, after a hearing, other services that should be included in the definition of basic local telecommunications service.

In addition to the definition of basic local telecommunications services contained in PURA95, the PUC maintains service quality standards in its Subst. R. §23.61. These standards provide a series of benchmarks that must be maintained by dominant certificated telecommunications utilities in categories ranging from dial tone speed to the adherence to installation and repair commitments. The PUC monitors ILEC service through the review of performance measure reports and the analysis of consumer complaints. The standards permit the PUC, its staff, and others to objectively evaluate and track service quality performance.

The FCC does not have service quality standards; however, the Industry Analysis Division of the FCC's Common Carrier Bureau periodically publishes a report on certain service indicators of the Regional Bell Operating Companies. Certain data on service quality are also available through the FCC's ARMIS (Automated Reporting Management Information System) data base that may be accessed via the internet.

²²⁵ *Ibid.*, paras. 45-47, 52.

The PUC's Subst. R. (§23.61) and PURA95 Subtitle H and I contain infrastructure requirements for ILECS that are discussed in more detail in Chapter 10 of this report.

Affordability of Rates

SUBSIDIES AND SUPPORT MECHANISMS

Over the last half-century, subsidies or support mechanisms have been an important tool used by regulators to promote the goal of universal telephone service in the United States.²²⁶ As one study put it, "as one looks at the historical development of the telephone system it appears that almost everything conceivable has been done to make telephone service more affordable to residential consumers through a system of transfer payments."²²⁷

As competition emerges in local exchange service markets, ILECs and their competitors are applying pressure to change the current system of revenue support mechanisms. It is important to recognize and evaluate the impact of changes in incumbent carrier revenue streams; changes that may promote competition may have a detrimental effect upon existing subscribers unless effective safeguards are employed. In considering the rules and procedures under which competition is introduced into local service markets, regulators must pay particular attention to whether the price and service benefits of competition will reach low-income or mobile citizens, or those living in rural or high-cost areas, or other populations most likely to be nonsubscribers.

The difficulty with identifying subsidies and support flows within the telecommunications industry lies in the significant amount of network equipment that can only be identified as joint or common cost. It is difficult to readily assign costs of that joint equipment to one group of services or another, and the design of rates that produce revenues to recover those common costs is subject to intense debate. From an economic perspective, a service item is not subsidized unless its cost is more than the revenue received for it. Therefore, to the extent that the cost of the service is not clearly distinguishable, the existence and extent of subsidy is unclear.

The focus of debate regarding subsidies in telecommunications most often centers on the recovery of the cost of the local subscriber access line, or local loop. The investment in the local loop generally comprises 40 percent or more of the overall investment in telecommunications network plant. The debate centers on whether the cost

²²⁶ Portions of this discussion are excerpted from the FCC report, *Preparation for Addressing Universal Service Issues: A Review of Current Interstate Support Mechanisms*, *op. cit.*

²²⁷ J. Cale Case and Mark G. Ciolek, *Federal Telecommunications Subsidies in the USA* (Apr. 1993), p. 2 (available from Palmer Bellevue Corp., 111 W. Washington St., Suite 1247, Chicago, IL 60602).

of the local loop put in place to provide service to a customer should be recovered from that customer, or whether it should be recovered from the revenues from the many services that are provided using that loop. Current rates are designed to recover a portion of the cost of the loop directly from the customer via flat monthly charges, e.g., monthly recurring local exchange rates and the interstate Subscriber Line Charge (SLC). The remainder of the costs of the loop are recovered from services that utilize the loop, e.g., the Carrier Common Line (CCL) portion of access charges, toll charges, and charges for optional services such as custom calling and other non-basic local services.

Parties who advocate a reduction in access or toll charges generally assert that access or toll charges are subsidizing local service rates, and that a greater percentage of the common loop cost should be borne by the end user through flat monthly rates. Parties arguing against an increase in local rates or the SLC typically argue that the costs are more equitably recovered from the many services that use the loop, including the end user's basic monthly service rate. While this debate has continued for over 40 years without resolution, the introduction of competition and the accompanying efforts to establish unbundled service costs and cost-based rates has amplified the importance of resolving this controversy.

Historically, revenues from several services have been utilized to offset the cost of the local loop in order to keep basic local exchange rates low. The following services have generally been thought to be priced to some degree in excess of their incremental cost to provide some contribution to joint and common costs, therefore allowing basic local rates to remain affordable:

- *IntraLATA Toll (MTS) Service*
- *Intrastate Access Service*
- *Local exchange discretionary or "vertical" services, such as custom calling and tone dialing services.*
- *Interstate Access Services*

In low density, generally rural regions of our state and nation, subscriber loop costs may far exceed the statewide or national average, and those costs may be offset or subsidized by universal service funds that exist in both the state and federal jurisdictions. The following sections describe in greater detail the high cost support and other functions of the interstate and state universal service fund (USF) programs.

A 1995 study and report on universal service²²⁸ prepared by the LBJ School of Public Affairs at the University of Texas found that many phoneless persons are prevented from reestablishing service because of delinquent toll bills and service deposits rather than

²²⁸ Lodis Rhodes, Project Director, *The Evolution of Universal Service in Texas* (Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin), Policy Research Project Report Number 116.

monthly recurring charges. Specifically, the study established the following primary inferences from their survey sample:

- *The price of basic local telephone service does not seem to be the main barrier to phone subscribership.*
- *It is the variable costs of having a phone, as opposed to the fixed cost of installation and monthly service charges, that create affordability problems.*
- *Affordability problems arise from high installation charges that result from disconnection due to outstanding bills.*
- *Universal service programs are not well-known among the eligible population. Most of the people surveyed were eligible for telephone assistance programs, but about two-thirds had no knowledge of them.*

The issue of disconnection of local service for non-payment of other charges is the focus of a petition for rulemaking filed by the Office of Public Utility Counsel, the Center for Economic Justice, and the Consumers Union Southwest Regional Office in Project No. 16606, *Petition of Office of Public Utility Counsel, et al, to Adopt Rules Which Prohibit Telephone Utilities from Disconnecting or Refusing to Connect Basic Local Telephone Service for Nonpayment of Other Services, Including Long Distance, and Other Reforms*. As this petition is pending before the Commission, this report will not address specific issues involved in the proceeding.

THE INTERSTATE UNIVERSAL SERVICE FUND

In order to better understand the workings of interstate universal service support programs, one must examine the complex relationships between costs and prices in the intrastate and interstate jurisdictions. The FCC regulates the recovery by ILECs of the portion of their total network cost associated with the provision of interstate services. The states regulate the recovery of costs associated with intrastate services (local service and state long distance services).

The FCC's Universal Service Fund consists of three programs: low-income lifeline assistance programs, the high-cost assistance program, and telecommunications relay services for the deaf.

Federal Lifeline Programs for Telecommunications

Lifeline Assistance²²⁹ and **Link Up America**²³⁰ promote universal service by reducing the monthly rate or initial connection charge for elderly or low-income telephone

²²⁹ 47 C.F.R. §§69.104(j)-(l), 69.117, 69.203 (f)-(g).

subscribers. The programs are managed by the states, and are funded through charges ultimately paid by interstate ratepayers.

States may choose to participate in either of the FCC's two **Lifeline Assistance** plans.²³¹ **Plan 1** provides for a reduction in a subscriber's monthly telephone bill equal to the \$3.50 federal subscriber line charge (SLC). Half the reduction comes from a fifty percent waiver of the charge; the other half comes from the participating state, which matches the federal contribution by an equal reduction in the local rate. Assistance is available for a single telephone line to the principal residence of subscribers who satisfy a state-determined means test. Of the 43 states participating in Lifeline, only California still offers a Lifeline program under Plan 1.²³²

Under **Plan 2**, which expanded Plan 1 to provide for waiver of the *entire* SLC (up to the amount matched by the state), a subscriber's bill may be reduced by *twice* the SLC (or more, if the state more than matches the federal waiver). The state contribution may come from any source, including state assistance for basic telephone service, connection charges, or customer deposit requirements. Companies in forty-three states or territories reported subscribers receiving Plan 2 Lifeline Assistance as of April, 1996. In 1995, about 4.9 million households throughout the nation received \$137 million in lifeline assistance through full or partial waiver of the SLC.²³³

The **Link Up America** program helps low-income subscribers initiate telephone service by paying half of the first \$60 of connection charges. Where a LEC has a deferred payment plan, Link Up will also pay the interest on any balance, up to \$200, for payment plans lasting up to one year. To be eligible, subscribers must meet a state established means test, and may not, unless over sixty years old, be a dependent for federal income tax purposes. Link Up is available in all but two states (California and Delaware). Roughly 824,000 households across the country received \$18.4 million in Link Up assistance in 1985.²³⁴

Telecommunications Relay Service

Telecommunications relay service (TRS) provides a communication link between persons with and without hearing or speech disabilities. TRS relies on communications assistants to relay the content of calls between users of text telephones (TTYs) and users of traditional handsets. For example, a TTY user may telephone a voice user by calling a TRS provider's relay center, where a communications assistant will place

²³⁰ 47 C.F.R. §§36.701 - 36.741, 69.117.

²³¹ Portions of this discussion are excerpted from the FCC's report, *Preparation for Addressing Universal Service Issues*, pp 34-35.

²³² *Monitoring Report, Federal-State Joint Board Staff in CC Docket No. 80-286, CC Docket No. 87-339, (May 1996).*

²³³ *Ibid*, Tables 2.5 - 2.6.

²³⁴ *Ibid*, Tables 2.7 - 2.8.

the call to the voice user and relay the conversation by transcribing spoken content for the TTY user and reading text aloud for the voice user.

TRS is required by Title IV of the Americans with Disabilities Act (ADA) and, to the extent possible, must be "functionally equivalent" to standard telephone service. The cost of interstate TRS is recovered from all providers of interstate telecommunications services, as a percentage of their gross revenues and a "contribution factor" determined annually by the FCC. The FCC has established an interstate TRS Fund Advisory Council, that is composed of consumer representatives, TRS users, state regulatory officials, TRS providers, and state relay administrators, in order to advise the TRS Fund Administrator on funding issues.

Interstate High Cost Assistance

The interstate high-cost assistance program involves the allocation, between the state and interstate jurisdictions, of non-traffic sensitive (NTS) "local loop costs" -- a term that refers to the costs of outside telephone wires, poles, and other facilities that link each telephone customer's premises to the public switched telephone network. These costs are allocated between the state and interstate jurisdictions because all local loops can be used for making and receiving state and interstate telephone calls.

The FCC's rules outline a program that is currently designed, in part, to reimburse ILECs for a portion of the cost of providing service to very high cost regions, thus reducing the amount of revenue that must be recovered from each customer. This reimbursement occurs through a special mechanism in the jurisdictional separations process. On a nationwide average basis, approximately 27 percent of ILEC local loop cost is allocated to the interstate (federal) jurisdiction, and 73 percent is allocated to the state jurisdiction. The average cost per loop, however, varies significantly among ILECs. In this manner, the high-cost assistance program operates to hold down local rates and thereby promotes one of the most important goals of federal and state regulation -- the preservation of universal telephone service. The FCC's program assists ILECs with high NTS costs with payments from the USF. Interstate IXC's pay into the federal USF to provide this support.

Appendix H contains a more detailed description of the formula that is used to determine the amount of high cost support, along with a listing of the amount of funding received by Texas ILECs from the federal USF.

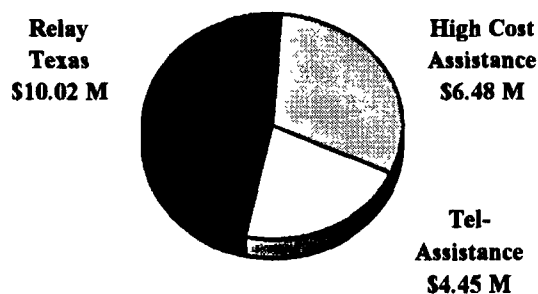
TEXAS' UNIVERSAL SERVICE FUND

The 70th Texas Legislature established a Universal Service Funding mechanism for Texas through amendments to PURA in 1987. The statute has been amended, but the extensive changes by the 74th Texas Legislature in establishing PURA95 retained the following language in Section 3.608:

The commission shall adopt and enforce rules requiring local exchange companies to establish a universal service fund to assist local exchange companies in providing basic local telecommunications service at reasonable rates in high cost rural areas, to reimburse local exchange companies for revenues lost as a result of providing tel-assistance service under this Act, to reimburse the telecommunications carrier providing the statewide telecommunications relay access service for the hearing-impaired and speech-impaired as authorized in Section 3.604 of this Act, and to reimburse the Texas Department of Human Services and the commission for costs incurred in implementing the provisions of this subtitle.

The current intrastate USF contains three major functions, similar to the interstate USF program: a high cost assistance program, the Relay Texas program, and the Tel-Assistance program.

Figure 9.2: Composition of Intrastate USF - 1995



Source: TECA Statement of Revenues and Expenses

Intrastate High Cost Assistance Program

The High Cost Assistance (HCA) portion of the intrastate USF is currently used to provide financial assistance to ILECs in high-cost rural areas that have demonstrated a need for additional revenue support to keep basic local telecommunications service affordable. The guidelines for allowing ILECs to obtain this support are contained in PUC Subst. R. §23.53. After beginning as a very small fund to support only a handful of high-cost companies, the HCA has grown in response to actions that phased out the

interexchange carrier access charge (ICAC). As of September 1996, eleven ILECs are receiving annual payments totaling more than \$6 million from the state HCA program.

Relay Texas Program

In 1989, the Texas Legislature authorized telecommunications relay service (TRS) in Texas and directed the PUC to supervise the provision of the service. The statutory language regarding Texas TRS is presently codified as PURA §3.604.

The name "Relay Texas" was coined for Texas TRS. Relay Texas is available 24 hours a day, 365 days a year, with no restrictions on the length or number of calls placed. In September 1990, the first month of operation, Relay Texas processed nearly 50,000 relay calls; by July 1996, the number of calls had increased to over 350,000 per month. Relay Texas has led the nation in improving the quality of TRS, as with enhancements such as voice-carry-over, time stamp macro, customer data base, and Spanish interpreting.

From September through November 1996, Relay Texas conducted a trial of Video Relay Interpreting (VRI), as a follow-up to a one-month trial in January 1995. VRI allows relay users to communicate in sign language rather than typed text, and it may represent the next enhancement to TRS in Texas and elsewhere.

Pursuant to PURA, TRS is provided by a designated carrier and funded by a surcharge on local and long-distance telecommunications providers through the Universal Service Fund. The PUC awarded a five-year contract to Sprint Communications L.P. (Sprint) for Texas in 1990; Sprint was awarded a new five-year contract in 1995, renewable annually for up to five years. Under federal law, however, TRS may be provided by a designated carrier or by each telephone company. Most states designate a carrier as Texas has, but this standard is undergoing change.

A model for competition in the provision of TRS is difficult to discern, but interest in creating a competitive market in this area has increased. AT&T, Sprint, and MCI provide the vast majority of TRS at both the state and national level, although some other telecommunications providers have expressed an interest.

In 1995, California issued an invitation to bid for TRS. The invitation provided that the lowest cost bidder would be chosen to provide TRS in California and would be awarded the toll-free numbers historically used to access California TRS. It went on to state that other TRS providers could offer service in California, provided that they did so at the same price as the contracted carrier. MCI won the California contract, but Sprint and AT&T (the other bidders) announced publicly that they would not offer service at MCI's price. Consequently, California still has a single TRS provider, and its attempt to create a competitive market failed.

In 1995, Oregon issued an invitation to bid for TRS. The invitation provided for two-tier bidding: one price for acting as the sole TRS provider and one price for acting as

one of multiple TRS providers. Oregon received bids from three companies; after further review, the state concluded that one TRS provider was more cost-effective.

At present, there appear to be several barriers to creating a competitive TRS market, in Texas and elsewhere. The most practical barriers in Texas are the statutory requirements of a single TRS provider and a five-year contract term. The existing contract will not expire until 2000. Based on experience thus far, it is unclear whether the TRS market in any one state represents a situation that can support multiple TRS providers.

In order to review the provision of TRS and enhanced services linked to it, the FCC has said that it will soon issue a Notice of Inquiry (NOI). The provision of TRS may therefore change over the next year, as the FCC acts on the NOI.

Tel-Assistance and other Lifeline Programs

Tel-Assistance Service is a telecommunications service assistance program designed to provide eligible residential customers with a reduction in the price of basic local exchange access service. Eligible customers receive a reduction of 65 percent off the applicable local exchange tariff monthly rate for the local service provided. The Tel-Assistance program was created by the Texas Legislature in 1987 and is codified in PURA95 § 3.601. In order to be eligible, a customer must be the head of household, must be disabled (as determined by the Texas Department of Human Services), and must have an income below the poverty level. PURA95 removed a prior eligibility requirement that the applicant be over 65 years of age. There are approximately 56,800 clients currently receiving Tel-Assistance support; the amount of revenue support at year-end 1995 was \$4,450,208.²³⁵

Lifeline Assistance programs are offered by many ILECs in Texas to low income customers in their territory. These programs vary somewhat among ILECs, and are not supported by the intrastate Universal Service Fund. However, by offering a Lifeline program, the ILEC allows the customer to become eligible to receive credit for the interstate USF amount that equals the \$3.50 interstate Subscriber Line Charge (SLC). This program is discussed in more detail in the description of the interstate lifeline assistance programs earlier in this chapter. More than 136,000 Texas subscribers take advantage of the matching fund program, with support revenues of over \$6.7 million annually from the interstate universal service fund.²³⁶

Link-Up Texas is a program to help households become connected to the network through a partial waiver of the non-recurring installation charge for local exchange service. Link-Up Texas is the state companion program of Link-Up America, also described in the interstate portion of this chapter. More than 70,000 Texas

²³⁵ TECA Statement of Revenue and Expenses.

²³⁶ Monitoring Report, Tables 2.5 - 2.6.

subscribers take advantage of this program, with support revenues of over \$1.3 million annually from the interstate universal service fund.²³⁷

Pending Revisions to Universal Service Programs

FEDERAL ACTIVITY

Universal service was a prominent issue in Congress' passage of FTA96. The statute establishes the following seven principles²³⁸ for the preservation and advancement of universal service:

- (1) ***QUALITY AND RATES***- Quality services should be available at just, reasonable, and affordable rates.
- (2) ***ACCESS TO ADVANCED SERVICES***- Access to advanced telecommunications and information services should be provided in all regions of the Nation.
- (3) ***ACCESS IN RURAL AND HIGH COST AREAS***- Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.
- (4) ***EQUITABLE AND NONDISCRIMINATORY CONTRIBUTIONS***- All providers of telecommunications services should make an equitable and nondiscriminatory contribution to the preservation and advancement of universal service.
- (5) ***SPECIFIC AND PREDICTABLE SUPPORT MECHANISMS***- There should be specific, predictable and sufficient Federal and State mechanisms to preserve and advance universal service.
- (6) ***ACCESS TO ADVANCED TELECOMMUNICATIONS SERVICES FOR SCHOOLS, HEALTH CARE, AND LIBRARIES***- Elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services as described in subsection (h).
- (7) ***ADDITIONAL PRINCIPLES***- Such other principles as the Joint Board and the Commission determine are necessary and appropriate for the protection of the public interest, convenience, and necessity and are consistent with this Act.

²³⁷ Monitoring Report, Tables 2.7 - 2.8.

²³⁸ FTA96, Section 254.

FTA96 requires that all federal universal service support be made explicit. The FCC has established a proceeding to examine the issues related to universal service and has received comments from hundreds of interested parties on this issue. The statute directs the FCC to convene a Federal-State Joint Board to examine the complex issue of universal service, and requires the FCC to conclude its proceeding on universal service no later than May 1997.

The FCC created a Federal-State Joint Board in March 1996 to address universal service issues. The recommendations adopted by the Joint Board²³⁹ were designed to ensure that affordable quality telecommunications services are available to all consumers, including low-income consumers, in all regions of the nation. In addition, the Joint Board's recommended decision took the first step in implementing the requirements of FTA96 that pertain to discounted rates for schools, libraries, and rural health care providers.

The Joint Board's recommendations touch on many issues involved in the complex overhaul of the current system of support for universal service. Major issues include the definition of high cost areas and the services and carriers eligible for support, as well as the manner in which telecommunications providers will pay into the fund. The Joint Board recommended that, in addition to the universal service principles enumerated by FTA96, a new principle should be added: that the new program must be competitively neutral. The Joint Board proposed changes to the current interstate low-income support programs to encourage subscribership, and recommended that Lifeline customers' local service not be subject to disconnection for non-payment of toll charges. The Joint Board recommended the use of a proxy model to determine the level of support to be applied to rural areas, but declined to designate the specific model to be used. In addition, the Joint Board recommended shifting specific long-term support payments to the revised universal service fund, and recommended that the subscriber line charge not be increased.

The Joint Board also recommended discounts for schools and libraries ranging up to 90% of the price of services, if they are located in high-cost, economically disadvantaged areas. The size of the portion of the fund used to support services for schools and libraries is capped at \$2.25 billion per year. The Joint Board recommended that the FCC collect additional information before determining the precise role of the universal service fund in support of rural health care providers and Internet access in rural areas.

The Joint Board recommended that all telecommunications carriers that provide interstate telecommunications services be obliged to contribute to the universal service fund. Under this recommendation, contributions are to be based on carriers' gross revenues from telecommunications services net of payments to other carriers. The funding for schools, libraries, and health care is specified to be an assessment on the combined interstate and intrastate revenues of providers of interstate telecommunications services.

²³⁹ Recommend Decision, *In the Matter of Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, FCC 96J-3 (November 7, 1996).

The Joint Board made no recommendation concerning the appropriate funding base for the modified high cost assistance program and the low-income support mechanisms, but requested that additional comments and information be collected regarding the issue.

The revision of the current system of universal support payments as required by FTA96 is a massive undertaking, with many billions of dollars in revenue in the balance. The designation of carriers and serving areas that are eligible to receive support payments under the new plan may well have a significant impact on incumbent carriers, competitors, and even consumers. The FCC has requested comments on the Joint Board's recommended decision, and must make its decisions on universal service no later than May 1997.

STATE ACTIVITY

The PUC recognizes the inherent conflict between competitive pricing pressures and traditional ratemaking in telecommunications. As discussed in another portion of this report, the Texas PUC has been at the forefront of cost study development, and is required under PURA95 to complete its costing and pricing rules in the near term. With the acceleration of competitive entry caused by PURA95, it is clear that the PUC must review its universal service funding mechanisms to ensure that a) improper pricing signals do not inhibit the entry of competitors, and b) consumers are not unreasonably affected by the introduction of competitively priced services.

The PUC established Project 14929 to evaluate the need for revisions to the Commission's current rules and programs on universal service. Within that project, the PUC staff has conducted meetings and workshops to discuss the issues involved in universal service. The PUC is cognizant of the universal service reform occurring in the federal jurisdiction, the overarching requirements of FTA96 regarding universal service, and the necessity to harmonize our state's review with the FCC's activity. The PUC is conducting a rulemaking to implement universal service reform, and plans to complete this process in 1997.

CHAPTER 10

STATUS OF INFRASTRUCTURE IN TEXAS; PURA95 REQUIREMENTS

As competition takes root and flourishes, it will bring service innovations and infrastructure modernization to Texas. The Texas Legislature recognized that consumer safeguards would be needed during the transition from the current network architecture to the robust competitive architecture of the future. Lawmakers and regulators must adopt guidelines to ensure that the benefits of competition in infrastructure modernization are shared with customers who live in areas of the state where competition is expected to evolve more slowly, especially those in rural areas. The U.S. Congress recognized this need as well, mandating the provision of advanced services in both rural and urban areas of the nation.

This chapter addresses five categories of requirements for infrastructure modernization:

- Requirements contained in PUC rules prior to the enactment of PURA95;
- PURA95 requirements that apply to all LECs;
- PURA95 requirements that apply to LECs electing under Subtitle H;
- PURA95 requirements that apply to LECs electing under Subtitle I; and
- PURA95 requirements for provision of service to certain entities.

PUC Requirements Prior to PURA95

Since 1976, the PUC has utilized service quality and infrastructure requirements in its Substantive Rules that govern carriers within its jurisdiction. These requirements are generally contained in §23.61 of the Substantive Rules, and apply only to dominant telecommunications utilities. Infrastructure-related objectives in this section address issues such as transmission and noise on network lines, dial tone speed, and call completion ratios.

In 1995, the PUC adopted changes in the network requirements to require LECs to provide one-party service, replace antiquated open wire subscriber lines, and to ensure that all subscriber lines would be capable of transmitting data rates of no less than 2,400 bits per second to all subscribers. Despite the archaic data speed of this requirement,

LECs nonetheless opposed the rule change as being too costly, and GTE applied for a waiver from meeting this requirement based on infrastructure costs.

In January 1996, the PUC implemented Subst. R. 23.69, related to the provision of Integrated Services Digital Network (ISDN) services by dominant LECs. ISDN service is the current vehicle for the provision of widespread end-to-end digital connectivity. The PUC found that ISDN service should be made available to customers at a reasonable price, should be as accessible as possible, and should meet minimum standards of quality and consistency. The rule contains a time schedule for the provision of ISDN service for ILECs with exchange areas serving more than 50,000 access lines.

PURA95 Requirements -- All LECs

Section 3.358 of the PURA95 emphasizes the importance of telecommunications infrastructure to the future of our state:

It is the goal of this State to facilitate and promote the deployment of an advanced telecommunications infrastructure in order to spur economic development throughout Texas. Texas should be among the leaders in achieving this objective. The primary means of achieving this goal shall be through encouraging private investment in the state's telecommunications infrastructure by creating incentives for such investment and promoting the development of competition. The best way to bring the benefits of an advanced telecommunications network infrastructure to Texas communities is through innovation and competition among all the state's communications providers. Competition will provide Texans a choice of telecommunications providers and will drive technology deployment, innovation, service quality, and cost-based prices as competing firms seek to satisfy customer needs.

In addition, Section 3.358(b) includes the following policy goals for the development of telecommunications services and facilities:

- (1) ensure the availability of the widest possible range of competitive choices in the provision of telecommunications services and facilities;
- (2) foster competition and rely on market forces where competition exists to determine the price, terms, availability, and conditions of service in markets in which competition exists;
- (3) ensure the universal availability of basic local telecommunications services at reasonable rates;
- (4) encourage the continued development and deployment of advanced, reliable capabilities and services in telecommunications networks;

- (5) assure interconnection and interoperability, based on uniform technical standards, among telecommunications carriers;
- (6) eliminate existing unnecessary administrative procedures which impose regulatory barriers to competition and assure that competitive entry is fostered on an economically rational basis;
- (7) assure consumer protection and protection against anticompetitive conduct;
- (8) regulate providers of services only to the extent they have market power to control the price of services to customers;
- (9) encourage cost-based pricing of telecommunications services so that consumers pay a fair price for services that they use; and
- (10) ... develop quality of service standards for local exchange companies as it deems appropriate to place Texas among the leaders in deployment of an advanced telecommunications infrastructure ...

Section 3.1555 of PURA95 instructs the PUC to require that each LEC (holders of CCNs and COAs) to provide a minimum grade of service to all customers, rural and urban, without discrimination, no later than December 31, 2000 that includes:

- single party service;
- tone-dialing service;
- basic custom calling features;
- equal access for interLATA interexchange carriers on a bona fide request; and
- digital switching capability in all exchanges on customer request, provided by a digital switch in the exchange or by connection to a digital switch in another exchange.

The current status of these infrastructure requirements are as follows:

Single Party Service -

All ILECs are currently offering single party service in all exchanges, with the exception of GTE. GTE requested and was granted a waiver by the PUC on Subst. R. 23.61(e)(1)(A) that requires the provision of one-party service to all customers by January 1, 1997. This affects 786 customers in 25 of GTE's exchanges (less than 0.05% of GTE's customers). All are scheduled to receive access to single party service no later than December 31, 2000, in compliance with PURA95 § 3.1555:

Tone-Dialing Service -

All ILECs in Texas currently are able to provide tone-dialing service to their customers in all exchanges.

Basic Custom Calling Features -

All ILECs in Texas currently are able to provide basic custom calling features to their customers in all exchanges.

Equal Access -

Approximately 99% of the subscribers in Texas have equal access, which allows the selection of the customer's preferred interLATA long distance carrier by dialing "1+" or "0+". In preparation for this report, ILECs reported that 1343 (91%) of the state's 1476 switching offices were equipped to provide equal access. The following table shows the ILECs that *were not* 100% equal access as of March 1, 1996:

Table 10.1: Unavailability of Equal Access (3/1/96)

<i>Company:</i>	<i>Total Offices</i>	<i>Not Equal Access</i>	<i>Affected Lines; Not Equal Access</i>
Blossom Tel. Co.	1	1	1,212
Border To Border Comm.	1	1	69
Brazos Tel. Cooperative	5	5	1,140
Five Area Tel. Cooperative	11	5	5,110
GTE	452	95	79,204
Leaco	1	1	11
Lipan	2	2	1,090
Lake Livingston Tel. Co.	1	1	1,096
Mid Plains Tel. Cooperative	9	9	2,340
North Texas Tel. Co.	2	2	809
Sprint - United Tel. Co.	59	10	14,760

Source: Responses to 1996 ILEC Data Requests

PURA95 Requirements -- **Subtitle H Companies**

In addition to the minimum services and the goals established by PURA95, ILECs electing into the incentive regulation plan contained in Subtitle H are required to comply with expanded requirements. PURA95 §3.158(c) enumerates the following requirements, and for each we show the current status of activity:

End-to-End Digital Connectivity

Electing incumbent local exchange companies shall make access to end-to-end digital connectivity available to all customers in their territories by December 31, 1996.

Table 10.2: End-to-End Digital Connectivity (9/1/96)

<i>Electing Company</i>	<i>Southwestern Bell</i>	<i>GTE</i>
Total # of Access Lines	8,230,778	1,682,136
Access Lines having end-to-end digital connectivity	8,227,512 (99.96%)	1,674,550 (99.55%)

Source: Subtitle H ILEC Annual Infrastructure Reports

Digital Switching

Fifty percent of the local exchange access lines in each electing local exchange company's territory must be served by a digital central office switch by January 1, 2000.

Table 10.3: Switching Technology - Switching Entities (3/1/96)

	Digital		Analog		Electromechanical		Total
	Number	%	Number	%	Number	%	
ALL	1,584	84.5%	182	9.7%	109	5.8%	1,875
SWB	581	76.6%	177	23.4%	0	0.0%	758
GTE	552	83.5%	0	0.0%	109	16.5%	661
OTHERS	451	98.9%	5	1.1%	0	0.0%	456

Source: Responses to 1996 ILEC Data Requests

Table 10.4: Switching Technology - Number of Access Lines (3/1/96)

	Digital		Analog		Electromechanical		Total
	Number	%	Number	%	Number	%	
ALL	6,026,369	58.1%	4,272,019	41.2%	72,156	0.7%	10,370,544
SWB	3,825,267	47.3%	4,266,909	52.7%	0	0.0%	8,092,176
GTE	1,561,436	95.6%	0	0.0%	72,156	4.4%	1,633,592
OTHERS	639,666	99.2%	5,110	0.8%	0	0.0%	644,776

Source: Responses to 1996 ILEC Data Requests

New Switching Offices to be Digital

All electing company new central office switches installed in Texas must be digital, or technologically equal to or superior to digital, after September 1, 1995. At a minimum, each new central office switch installed after September 1, 1997, must be capable of providing Integrated Services Digital Network (ISDN) services in a manner consistent with generally accepted national standards.

All ILECs, including Southwestern Bell and GTE, have indicated that all new central office switching equipment installed after the date shown is digital technology.

Broadband Facilities

Electing incumbent local exchange companies' public switched network backbone inter-office facilities must employ broadband facilities capable of at least 45 megabits per second, or at lower bandwidths if evolving technology permits the delivery of video signal at quality levels comparable to a television broadcast signal, by January 1, 2000. This requirement shall not extend to local loop facilities.

Table 10.5: Broadband Facilities (9/1/96)

<i>Electing Company</i>	<i>Southwestern Bell</i>	<i>GTE</i>
Total # of Interoffice Facilities	524	988
Number and Percentage Broadband Facilities	420 (80.2%)	573 (58.0%)

Source: Subtitle H ILEC Annual Infrastructure Reports

Signaling System 7 - Southwestern Bell

An electing company of greater than five million access lines [Southwestern Bell] shall also install Common Channel Signaling 7 capability in all central offices by January 1, 2000.

Table 10.6: Southwestern Bell SS7 Deployment (9/1/96)

Total SWB Central Office Switches	737
Total Equipped with CCS-7 Signaling	685
Percent Equipped with CCS-7 Signaling	92.94%

Source: Southwestern Bell Annual Infrastructure Report

Fiber Connectivity - Southwestern Bell

An electing company of greater than five million access lines shall connect all of its serving central offices to their respective LATA tandem central offices with optical fiber or equivalent facilities by January 1, 2000.

Table 10.7: Southwestern Bell Fiber Connectivity (9/1/96)

Total Southwestern Bell Central Offices	524
Total Offices having Fiber Connectivity to Tandem	408
Percent with Fiber Connectivity	77.86%

Source: Southwestern Bell Annual Infrastructure Report

Digital Switching - GTE

An electing company serving more than one million access lines and fewer than five million access lines [GTE] shall provide digital switching central offices in all exchanges by December 31, 1998.

Table 10.8: GTE Switching Office Deployment (9/1/96)

Total GTE Central Office Switches	997
GTE Digital Switches	975 (97.8%)

Source: GTE Annual Infrastructure Report

PURA95 Requirements -- **Subtitle I Companies**

In addition to the minimum services and the goals established by PURA95, ILECs electing into the incentive regulation plan contained in Subtitle I are required to comply with expanded requirements. PURA95 §3.403(b) enumerates the following requirements, and for each we show the current status of activity:

End-to-End Digital Connectivity

Electing incumbent local exchange companies shall make access to end-to-end digital connectivity available to all customers in their territories by January 1, 2000. "Make available" as used in this subsection shall have the definition contained in 16 T.A.C. Section 23.69.

Table 10.9: Subtitle I Company End-to-End Digital Connectivity (9/1/96)

<i>Electing Company</i>	<i>Sugar Land</i>	<i>Sprint - United</i>
Total # of Exchanges	9	59
Currently in Compliance	1	none
Total # of Access Lines	52,137	134,447
Lines Served by Switches In Compliance (with ISDN)	46,837 (90%)	none
Schedule Notes	100% by year-end 1999	plan under development

Source: Subtitle I ILEC Annual Infrastructure Reports

Digital Switching

Fifty percent of the local exchange access lines in each electing local exchange company's territory must be served by a digital central office switch by January 1, 2000.

Table 10.10: Subtitle I Company Digital Switch Deployment (9/1/96)

<i>Electing Company</i>	<i>Sugar Land</i>	<i>Sprint - United</i>
Total # of Exchanges	9	59
Currently in Compliance	9	59
Total # of Access Lines	52,137	134,447
Lines Served by Switches In Compliance (with ISDN)	52,137 (100%)	134,447 (100%)

Source: Subtitle I ILEC Annual Infrastructure Reports

New Switching Offices to be Digital

All electing company new central office switches installed in Texas after September 1, 1995, must be digital.

Both companies currently electing under Subtitle I are already equipped with digital switches in all exchanges. They have indicated that future additions and replacements will be digital or its equivalent.

Broadband Facilities

Electing incumbent local exchange companies' public switched network back-bone inter-office facilities must employ broadband facilities capable of at least 45 megabits per second, or at lower bandwidths if evolving technology permits the delivery of video signal at quality levels comparable to a television broadcast signal, that serve at least 50 percent of the local exchange access lines by January 1, 2000. This requirement shall not extend to local loop facilities.

Table 10.11: Subtitle I Company Broadband Facility Deployment (9/1/96)

<i>Electing Company</i>	<i>Sugar Land</i>	<i>Sprint - United</i>
Total # of Exchanges	9	59
Currently in Compliance	2	34
Total # of Access Lines	52,137	134,447
Lines Served by Switches In Compliance	49,668 (95.3%) (currently in compliance)	105,215 (78.3%) (currently in compliance)

Source: Subtitle I ILEC Annual Infrastructure Reports

Signaling System 7

Electing incumbent local exchange companies shall install Common Channel Signaling 7 capability in all access tandem offices by January 1, 2000.

Table 10.12: Subtitle I Company SS7 Deployment (9/1/96)

<i>Electing Company</i>	<i>Sugar Land</i>	<i>Sprint - United</i>
Total # of Switching Offices *	9	59
Currently in Compliance	9 (100 %)	10 (16.9%)

Source: Subtitle I ILEC Annual Infrastructure Reports

* These companies reported on number of switching offices rather than number of tandem offices.

Infrastructure Commitments and Discounted Services for Certain Entities:

SPECIAL PROGRAMS

PURA95 requires all carriers that elect under Subtitle H or I to make a special infrastructure commitment to "certain entities", defined as educational institutions, libraries, and certain hospitals and telemedicine applications. This infrastructure commitment is designed to drive the deployment of advanced telecommunications services throughout the electing companies' service areas. The entities are allowed to obtain the broadband digital services specified in PURA95 §§ 3.359 and 3.403, upon request, at prices that are 105% or 110% of the incremental cost of the services, and the entities are not required to pay installation or construction charges. Electing companies are required to give investment priority to serving rural areas, areas designated as critically underserved, medically or educationally, and educational institutions with high percentages of economically disadvantaged students.

In addition to the special pricing of broadband services provided to the educational institutions, libraries, and telemedicine centers, Southwestern Bell is required under PURA95 § 3.359(b)(5) to provide a toll-free connection or dialing arrangement for use by educational institutions or libraries in accessing the Internet in an exchange where toll-free access to the Internet is otherwise not available.

Another special pricing arrangement for educational institutions is contained in PURA95 § 3.605, and allows for a reduced tariffed rate for a service that is directly related to a distance learning activity by an educational institution or an information sharing program conducted by a library. The discounted rate is equal to 75% of the otherwise applicable rate. These distance learning and information sharing programs apply to all ILECs, not just those electing into incentive plans under Subtitle H and I.

REPORTED RESULTS

As of September 1996, hundreds of schools, hospitals, and libraries are taking advantage of discount plans offered by ILECs in Texas. Listings of the entities and services are provided in Appendix I.

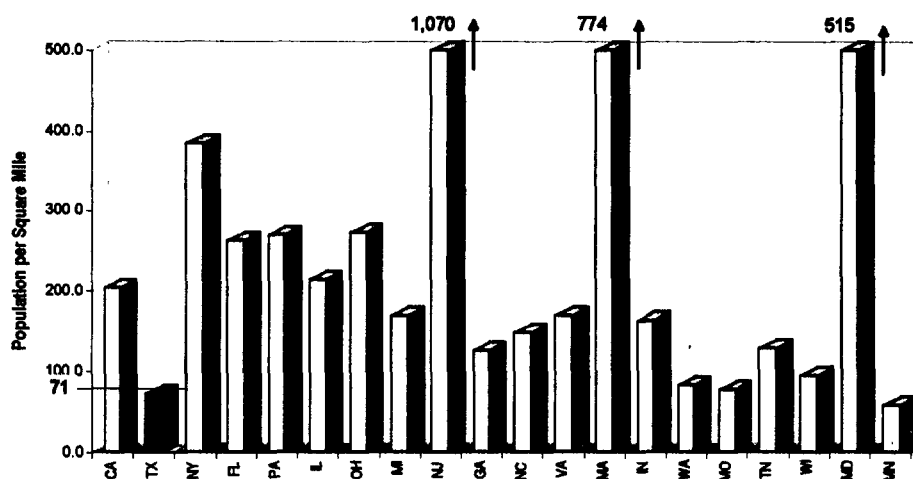
CHAPTER 11

COMPETITION IN RURAL AREAS

The Lone Star State

Texas is the second most populous state in the nation, with three of the top ten cities in the U.S. within our boundaries. However, Texas has an enormous amount of rural area, ranking thirtieth in population *density* among the states. As can be seen from the figure below, there is only one other state in the twenty most populous that has a population density as low as that found in Texas. Within our 254 counties and 261,900 square miles of land area, our population is widely dispersed. Our six largest counties account for almost half of our state's population, while over one-third of our citizens live within smaller counties that have a population density of less than 10 persons per square mile. Nine Texas counties, with a combined land area of over 18,000 square miles, have population densities of less than one person per square mile.²⁴⁰

Figure 11.1: Population Density of 20 Largest States



These geographic indicators are important because of the fact that with today's telecommunications network -- consisting primarily of physical, non-wireless loop technology -- it is very costly to serve rural areas of our state. In addition, there are many technologies, e.g., high bandwidth services on copper facilities, that are very sensitive to the length of the serving loop and are more difficult and costly to provide to rural subscribers.

²⁴⁰ 1995 World Almanac, U.S. Census Bureau Estimate of July 1996 Resident Population of States.

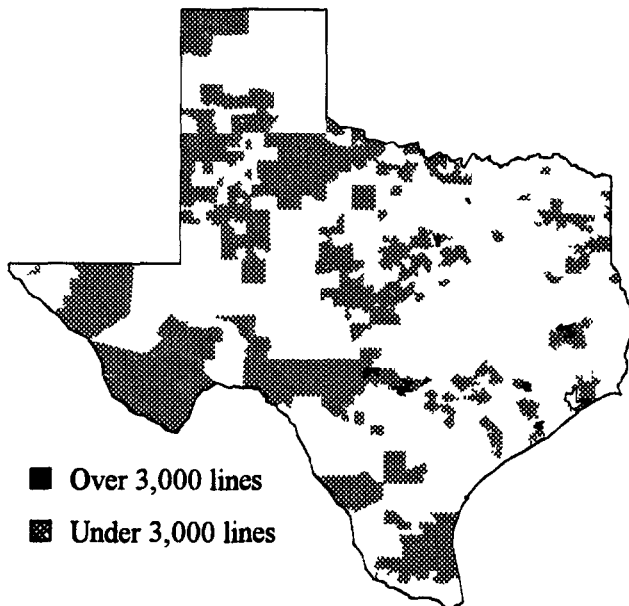
Most analysts agree that the introduction of facility-based competition will occur first in high-density metropolitan areas, with resold or shared facilities (or wireless services) used to serve the remaining areas of our state. This bodes well for residents and businesses within metropolitan areas, but for consumers that are more than a mile from a competitive fiber ring or for residents of rural areas, competitive choices may be more limited.

Both the Texas Legislature and the United States Congress recognized the importance of ensuring that the benefits of the competitive era are extended to all citizens. As discussed in Chapter 10 of this report, the Texas Legislature mandated the modernization of the telecommunications infrastructure throughout the state. In the Federal Telecommunications Act of 1996, Congress stated:

[c]onsumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.²⁴¹

The key elements in extending the benefits of competition to all areas of our state

Figure 11.2: Small Telco and Cooperative Service Areas



Source: Responses to 1996 ILEC Data Request

are customer choice and availability. Both PURA95 and FTA96 refer to *access* to advanced services. Customers should be provided a certain package of basic services, and should have access to optional advanced services in any region of the state. In this chapter, we describe the general availability of services to rural customers.

One observation is important to a discussion of service provisioning in rural areas: portions of communities in rural areas may in actuality be neither rural, low density, or high cost. The downtown portion of a small “rural” community may look much the same in terms of customer density and network design as a

²⁴¹ FTA96, Sec. 254(b)(3).

portion of a suburban area, and may be no more costly to serve than the suburban area. However, traditionally rural communities are generally surrounded by a sparsely populated area that is expensive to serve.

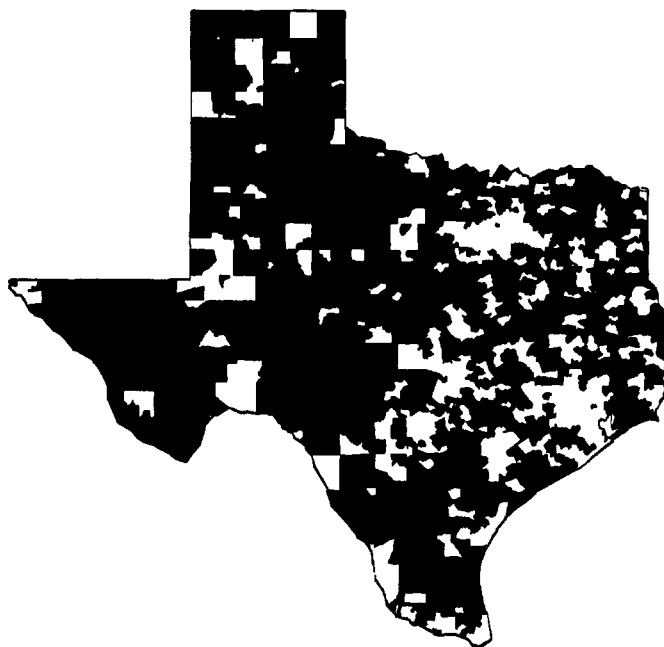
Basic Telecommunications Services

Virtually all residents of Texas have access to basic local telecommunications services. A 1991 study done informally by the PUC staff found that approximately 12,800 square miles of the state was not certificated to be served by any local exchange carrier. However, many of these areas have very few habitable structures or residents.

As discussed in Chapter 10 of this report, the PUC has had rules in place since 1976 that govern the quality of service offered by incumbent ILECs. Over time, these standards have been modified and strengthened to provide direction to the carriers and allow meaningful measurement of service levels against the established benchmark. ILECs in Texas have generally supplied the network improvements needed to provide good service to their customers and in doing so, have generally been in compliance with the PUC's service rules.

Somewhat surprisingly, many telephone subscribers in rural areas have actually received better services than their counterparts in urban and suburban areas. The Rural Electrification Administration (REA), now known as the Rural Utility Service (RUS) of the U.S. Department of Agriculture, has required for many years that the funds provided to small ILECs and cooperatives be used for network modernization to specific standards. For example, the REA insisted that their loan recipients were to provide one-party service throughout their service areas, that no construction charges or mileage charges could be applied for rural line extensions, and that network switching must be provided using state-

Figure 11.3: Exchanges with Less than 3,000 Lines



Source: Responses to 1996 ILEC Data Request

of-the-art technologies. As a result, many of the small ILECs and cooperatives have provided digital switching and one-party service for their rural customers and members.

However, the provision of advanced services such as wideband data or interactive video services has generally been hindered in rural areas by 1) wireline facility distance and 2) relatively lower demand for such services. Thus, the ubiquitous provision of advanced services may be doubly costly in a rural area.

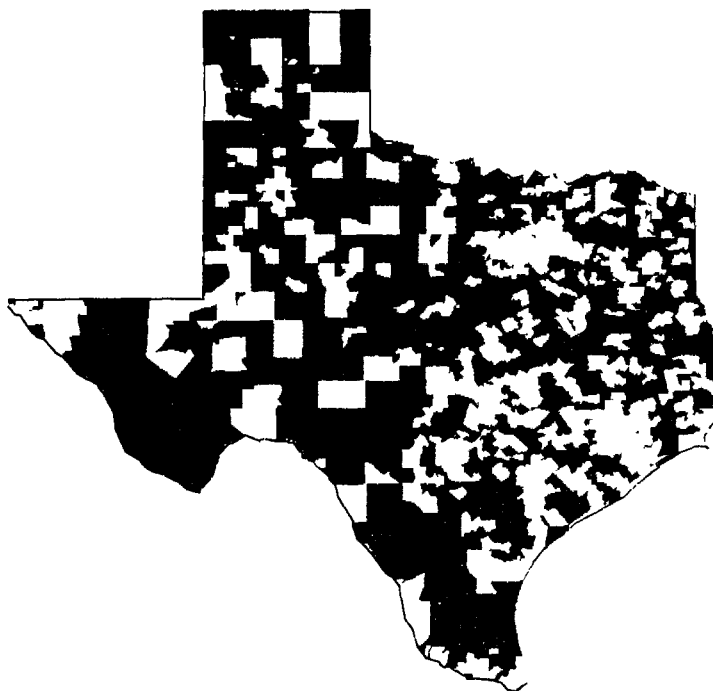
In the remainder of this chapter, we discuss five perspectives on the availability of technology and services to rural areas of Texas: digital switching, equal access, competitive pay telephones, competitive access providers, and alternative local service providers.

Digital Switching

Digital switching is generally accepted as one of the measures of the deployment of an advanced telecommunications network. Figure 11.4 illustrates the deployment of digital switches in exchanges with less than 3,000 lines.

The presence or absence of digital switching does not directly correlate to the presence of competition. However, one of the principal benefits of competition is the spread of technological improvement, and rural areas should receive benefits along with metropolitan areas.

**Figure 11.4: Small Exchanges (under 3,000 lines)
With Digital Switches**



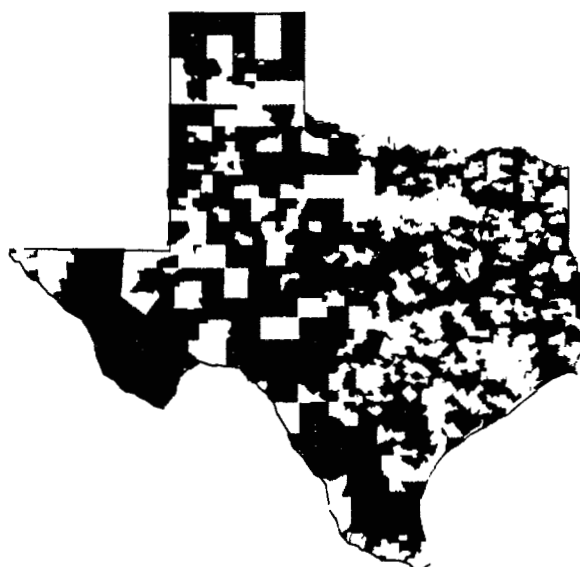
Source: Responses to 1996 ILEC Data Request

Equal Access

One of the major requirements of the Modification of Final Judgment (MFJ) that divested the Bell companies from AT&T in 1984 was the provision of equal access, whereby customers could "presubscribe" to the long distance carrier that carries their interLATA calls when the "1+" prefix is used. The Bell Operating Companies, including Southwestern Bell, were required to make equal access available to all customers (with certain exceptions) by September 1, 1986. Equal access timing requirements did not apply to non-Bell ILECs, however, and the small ILECs and cooperatives have been gradually implementing equal access since the divestiture.

The presence of equal access switching technology does not in itself guarantee that customers have a great deal of choice with respect to their interLATA long distance carrier. Carriers must establish a network presence in an exchange or in an access tandem serving the exchange in order for customers to reach them. For example, an exchange might have equal access, but might only have a small handful of carriers configured to provide service to the exchange. To determine the extent to which such choices were available, the ILEC data request asked for the number of interexchange carriers serving the exchange.

**Figure 11.5: Small Exchanges (less than 3,000 lines)
With Equal Access**



Source: Responses to 1996 ILEC Data Requests

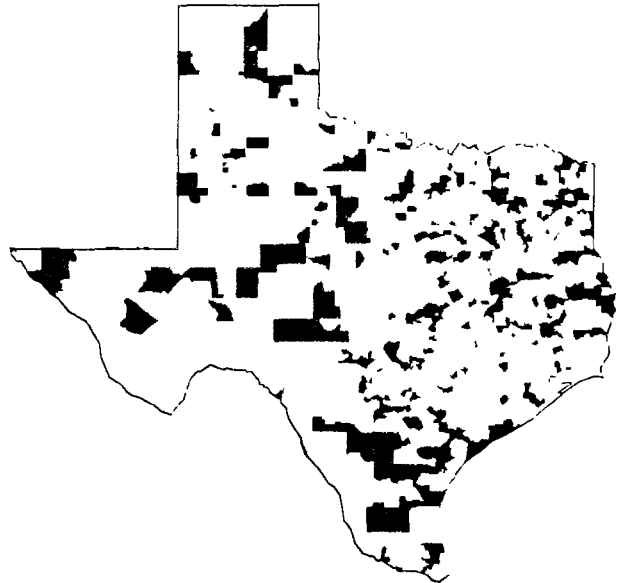
The ILEC responses indicate that equal access has, in fact, made a large number of competitors available to customers in small exchanges. As indicated in Chapter 10, almost 99 percent of the state's subscribers have equal access to long distance companies. For small exchanges -- serving fewer than 3,000 subscriber lines -- the level of equal access is over 89 percent. For those customers in small exchanges who have equal access, there are as many as 124 IXC's offering service; in other words, there are small exchanges in which a customer may choose from as many as 124 long distance carriers. The statewide average number of IXC's available to customers in small exchanges is over 37 carriers. Thus it appears that subscribers of small exchanges -- predominantly rural areas -- have access to many long distance choices. This does not negate the fact that the largest four firms handle most of the calls; it merely indicates that most rural areas have a wide range of choices.

Private Pay Telephones

As described in Chapter 3, the payphone market has been found by the FCC to be sufficiently competitive to order the deregulation of ILEC payphones. From a consumer perspective, however, payphones are only competitive to the extent that safeguards are in place that will allow the consumer to make an informed choice of service provider. It is difficult to measure the competitiveness of pay-phones in rural area; the presence of 10 competitive payphones in a town adds little relief to a consumer at a specific location where there is only one payphone present.

Nonetheless, the PUC staff requested information from ILECs regarding the number of competitive payphone providers (not necessarily the number of phones themselves) located in each exchange. Of the 787 non-SWB exchanges serving fewer than 3,000 access lines, 159 (20 percent) of those exchanges were said to have three or more competitive payphone providers. Figure 11.6 shows the small exchanges (less than 3,000 lines) in which three or more competitive payphone providers are operating.

Figure 11.6: Availability of Competitive Payphones in Small Exchanges



Source: Responses to 1996 ILEC Data Requests

Competitive Access Providers

The 1996 ILEC Data Request sought information on whether Competitive Access Providers (CAPs) were present in the ILEC exchanges. That information reveals that the CAP activity (described further in Chapter 8) is primarily focused on metropolitan areas: Houston, Dallas, San Antonio, Austin, Fort Worth, and El Paso. However, some suburban communities such as Irving, Garland, Carrollton, Plano, Sugar Land were shown to have CAP activity. In addition, Lufkin-Conroe Telephone Exchange responded that there is one CAP operating in their exchanges, some of which are considered small exchanges.

Sales of Small Exchanges by GTE

At its open meeting on May 13, 1996, the Commission addressed the recent sales of a number of exchanges by GTE/Contel (GTE) to small ILECs. The Commission asked representatives of GTE and two cooperatives seeking approval of their purchases to explain this phenomenon, and inquired as to whether the customers in these exchanges would receive comparable benefits from the acquiring ILECs that they would have received from GTE.

These representatives responded that the sales were prompted by economic criteria, and that the public would not be short-changed. Specifically, GTE had decided in 1992 to sell many exchanges of "low strategic value" across the nation; typically, these exchanges could be served more efficiently by small ILECs based in the immediate area. [Although not mentioned, high-cost ILECs serving under 50,000 access lines also are able to receive more federal USF funding per line than can GTE.] Representatives of the acquiring ILECs (Santa Rosa and Cap Rock Telephone Cooperatives) also assured the Commission (1) that the affected exchanges had experienced no local rate increases (though access rates charged to long-distance carriers increased slightly), and (2) that the acquiring ILEC had provided or would provide the same upgrades GTE would have had to provide, in accordance with PURA §§ 3.358 and 3.359 (applicable to ILECs electing incentive regulation).

At this open meeting, the Commission specified the criteria it would use in determining whether a sale, transfer, or merger (STM) is in the public interest. The criteria are as follows:

1. What will happen to local telephone service rates?
2. Can the customers in the exchange(s) receive expanded local calling service or extended area service after the STM?
3. Will customers in the exchange(s) benefit from infrastructure and service improvements equivalent to those contemplated under PURA95 §3.358, and when?
4. Will public-entity customers in the exchange(s) receive infrastructure improvements at rates equivalent to or less than those outlined in PURA95 §3.359?
5. Is there public and customer support for the STM?

These criteria were explicitly considered for the first time in the Santa Rosa and Cap Rock cases, Docket Nos. 15034 and 15035. In view of the rates and facilities available to residents in the affected exchanges, the Commission, in its Orders signed on May 20, 1996, found these sales to be in the public interest.

CHAPTER 12

LEGISLATIVE RECOMMENDATIONS

1. Ensure Fair Business Practices and Quality of Service in a Competitive Environment.

As the market for telephone services becomes more competitive, customers will have more choices of service providers, and the need for many forms of rate regulation will diminish. The transition to competition, however, does not diminish the need for protection against unscrupulous business practices or the need for high quality telecommunications services. In fact, as the state's economy relies more and more on reliable delivery of telecommunications services, customer safeguards and quality of service assurances become increasingly important.

In order to protect customers and maintain service quality, the Commission must have clear statutory authority over all telecommunications carriers who fail to measure up to acceptable standards. Currently, the Commission's jurisdiction over "non-dominant" carriers is too limited to be effective in preventing abuse of customers. It is not necessary for the Commission to have its full traditional regulatory jurisdiction over a carrier in order to ensure fair business practices and quality service. Rather, the Commission's jurisdiction can be limited to customer service and service quality issues.

There are three areas where the Commission finds the need for statutory change particularly acute:

A. Ensuring Customers Receive Quality Service from All Telecommunications Providers.

Under PURA95, the Commission requires that incumbent local exchange companies (LECs) and Certificate of Operating Authority (COA) holders meet quality of service standards. The Commission does not have the jurisdiction, however, to require that SPCOA holders meet similar quality of service standards. While Service Provider Certificate of Operating Authority (SPCOA) quality of service may not have been in the spotlight when HB 2128 was passed, it has become an issue of significant concern as the number of SPCOA holders -- over 90 SPCOA certificates have been granted since the passage of HB 2128 -- has rapidly increased.

The Commission has received SPCOA applications from several companies who have no prior experience in telecommunications. While the Commission has followed HB 2128's mandate to open the doors to entrepreneurial competition through the SPCOA process, the Commission is concerned that inexperienced providers may not furnish the quality of service customers expect. As PURA95 is currently written, the Commission's only avenue for expressing its concerns is to deny the SPCOA application -- which

prematurely shuts off the competition without giving the new provider a chance to prove itself.

The Legislature could resolve these problems by amending PURA95 as follows:

First, empower the Commission to revoke a certificate, or to administer administrative penalties, if any telecommunications provider fails to comply with Commission customer service and service quality rules. The Commission currently has no authority to apply its rules to SPCOA holders; if the Commission cannot enforce its rules on SPCOAs, it cannot levy penalties for the violation of the rules.

Second, revise the statutory requirements for certification. Somewhat stricter requirements on the "front end" of the process would alleviate concerns that the carrier will fail to provide adequate service to its customers. For example, the Commission could require that an applicant not have had any unresolved slamming complaints against it in the past year, or could require performance bonds from companies whose financial health is doubtful. Explicit legislative authority to require such assurances will give the Commission the ability to creatively respond to customer concerns while continuing to actively encourage market entry by new competitors.

Third, require that COA and SPCOA certificates may be awarded to a company only in its corporate name, and that all telecommunications services provided by a corporation under a COA or SPCOA be provided in the corporate name. The proliferation of companies seeking certificates under "doing business as" (d/b/a) names, and of companies changing their assumed names after certificates are granted, make it difficult for the Commission to monitor customer complaints concerning those companies. Even with adequate authority to ensure quality of service, the Commission cannot protect consumers against unscrupulous providers if they are able to operate under assumed names that evade enforcement efforts.

B. Preventing and Punishing Slamming.

The changing of a customer's long distance carrier without the customer's knowledge or consent, known as "slamming," is a significant problem for Texas consumers. In fiscal year 1996, the Commission received 400 slamming complaints; the Texas Attorney General's office recently reported that slamming now ranks second among all topics of consumer complaints received statewide, and ranks first in some large cities. While slamming currently is a problem in the long distance market, the onset of competition in the local exchange market creates new dangers of local service slamming.

The Commission's ability to effectively prevent and punish slamming is extremely limited. The Commission's limited jurisdiction over long distance carriers does not provide the tools to effectively remedy slamming. In the local exchange service market, the Commission lacks clear authority to stop slamming by non-dominant carriers who hold certificates of operating authority (COAs) or service provider certificates of operating

authority (SPCOAs). While slamming is regulated by the FCC, the federal agency's ability to respond in a timely and effective manner to slamming complaints is often unsatisfactory.

The current slamming remedies place the burden on the customer to correct the problem, offer little satisfaction to the customer once slamming is stopped, and fail to provide significant disincentives to further slamming. These deficiencies could be remedied by adoption of a provision in PURA95 that authorizes the Commission to institute rules governing changes in carrier selection in both the long distance and local exchange markets.

To be truly effective, an anti-slamming statute should require the "slammer" to:

- (1) disgorge the illegally-gained revenue, and pay the revenues to the carrier actually selected by the customer;
- (2) pay the wronged customer some compensatory amount; and
- (3) be subject to administrative penalties for each violation.

C. Clarifying PURA95 Pay Telephone Requirements.

In HB 2128, the Legislature set a ceiling for the rates set by pay telephone operators. The ceiling for "local calls which are collect or operator-assisted or paid by credit card or calling card," was required to be not less than "the applicable local rates for such calls of any of the four largest interexchange carriers operating in Texas." PURA95 §3.2625(c). In practice, the ceiling has been difficult to enforce because the rates charged by the four largest IXC's are a moving target; it is nearly impossible for customers to know whether they have been charged a rate over the ceiling. This could be clarified by adding language to §3.2625(c) that provides that a "snapshot" of rates at a particular time can be used as a benchmark for the rate ceiling. For example, the rates of the four largest IXC's on January 1, 1997 could serve as the benchmark for the calendar year 1997.

Often it is the operator service charge that drives up the cost of payphone calls. The statute as written does not make it clear, however, that the pay telephone rate limits apply to the operator services provider involved in a customer's call from a pay telephone.

In its recent decision on payphones (CC Docket No. 96-128; see Chapter 3), the FCC requires all rates from payphones to be market-based and not regulated. However, the FCC allows states to determine situations in which market forces are not at work, and therefore where payphone rates may remain regulated to protect consumers. While the PUC continues to consider the implications of the FCC order, it appears that the provisions of PURA95 with regard to payphones and operator services may still be relevant in certain situations and may not be preempted.

2. Streamline administrative procedures by allowing alternative dispute resolution, including "customer option arbitration."

As telecommunications and electric markets become more competitive, it is important that the procedures used by the Commission to resolve disputes be streamlined wherever possible. This is the case for two reasons.

First, the Commission must be prepared for new types of customer problems that arise in competitive markets (e.g., the "slamming" problem is one that emerged only after the long distance market was opened to competition). When agreed solutions cannot be reached between a customer and its electric or telecommunications provider, the customer deserves a dispute resolution process that responds not only fairly, but quickly. Second, an increasing number of disputes before the Commission are between competitors in rapidly changing markets. In this context, the parties need regulatory actions to be completed more quickly than in the traditional "rate case" setting in monopoly markets. If improper activities are not prevented quickly, the competitive damage to a utility or a competitor may be severe.

The Commission would be in a better position to respond to the growing need for dispute resolution alternatives if it were given explicit legal authorization to mediate or arbitrate disputes. In particular, the Commission recommends that it be permitted to conduct "customer option arbitration" in disputes between consumers and utilities. In this forum, a customer could opt for pursuing its complaint against a utility through mediation or binding arbitration.

Customer option arbitration would provide customers the opportunity to determine the type of procedure that will be used to resolve their disputes. It would give customers the choice to bypass formal contested case processes so that their complaints can be handled with minimum legal and administrative expense. In cases that cannot be resolved through negotiation, this option gives customers and utilities a more informal, less expensive way to resolve disputes.

In cases involving competitive disputes between companies, the Commission recommends that mediation or arbitration be available as a dispute resolution tool if both parties consent to it. Disputes between competitors are more likely to give rise to important precedents regarding the development of competition than most customer complaint cases. In addition, a competitive carrier typically has more resources available to pursue a complaint than a typical customer. Therefore, both companies involved should be required to consent to alternative dispute resolution before it used in place of traditional procedures.

3. Recommendations of the Advisory Panel on Caller ID Consumer Education.

HB 2128 required that the Commission form the "Caller ID Consumer Education Panel." See PURA95 §3.3025(b). A report on the Advisory Panel's membership and activities is included in Chapter 6 of this report, as well as in the Annual Report of the Caller ID Consumer Education Panel (August 1996). The Advisory Panel's recommendations for changes in PURA95's Caller ID provisions are as follows:

A. Eliminate the language that states that the Commission can require a telecommunications provider to provide per-line blocking to a customer only if the customer submits a request for per-line blocking to the Commission.

PURA95 §3.302(d) states that a telecommunications provider shall be required to provide per-line blocking to a customer (which prevents a customer's identity from being revealed by Caller ID to the person the customer is calling automatically on all calls) only if "the Commission receives from the customer written certification that the customer has a compelling need for per-line blocking." The Advisory Panel found that this language has been interpreted to mean that customers cannot receive per-line blocking unless they send written certification to the Commission, and that customers are frustrated by this cumbersome process. The Panel agrees with this concern, and further believes that the inherent delay in receiving the service poses risks to customers' safety and privacy. The Panel met with the industry on this matter and, in general, found that the utilities would be willing to provide per-line blocking upon direct request from their customers.

Eliminating the language relating to the Commission's involvement in the provisioning of per-line blocking and the requirement that a customer provide written certification of a compelling need for per-line blocking would be accomplished by deleting the language in subsection §3.302(d) of PURA95 and replacing it with language stating that per-line blocking shall be provided by the telecommunications provider upon request of the customer. Further, an amendment to §3.3025(a) of PURA 95 will be necessary to remove a reference to the certification process. This can be accomplished by deleting the language "When a customer requests per-line blocking through the Commission," from the first line of that subsection.

B. Remove limitations on the Commission's ability to prescribe new requirements responsive to customer needs concerning Caller ID services.

While PURA95 states that the Panel was formed to provide recommendations to the Commission regarding the safe use and privacy of Caller ID services, and further states that the Commission may implement the recommendations of the panel to the extent consistent with the public interest, PURA95 §3.302(e) limits the Commission's authority to address those recommendations. Since, under subsection (e), the Commission has no authority to prescribe any requirements related to Caller ID blocking other than those stated in §3.302(c) and (d), customer concerns relating to such issues cannot be addressed through Commission action. The Advisory Panel found this provision unnecessarily

hinders its ability to aid in ensuring the provision of useful consumer education on Caller ID issues because the Commission cannot order the providers to engage in any specific consumer education related to the blocking issue. For example, the Advisory Panel found that under current law it could investigate whether educational materials are distributed in as effective a manner as marketing materials, as required by §3.3025(c) of PURA95, but they could do little to effect any necessary change. Hence, since the providers cannot be required by the Commission to change their practices, the information gained by the Panel regarding privacy and safety issues raised by the service is relatively useless.

Therefore, the Panel recommends deleting the language in §3.302(e) of PURA95.

4. Restore the level of funding for the Telecommunications Infrastructure Fund (TIF) to the original level established during the 74th Legislative Session.

The Texas Legislature, 74th Session, established the Telecommunications Infrastructure Fund (TIF) which was to be funded by assessments under PURA95 at an annual level of \$150 million for ten years. These funds are to be used to encourage the development of distance learning and telemedicine in Texas.

The TIF was challenged in federal and state courts by various companies, and the federal action was dismissed on jurisdictional grounds. On January 24, 1996, the state court ruled that the TIF assessment methodology violated the Texas Constitution's uniform and equal taxation clause. This ruling has had the effect of significantly reducing the annual assessment which funds the TIF.

The level of funding for the TIF should be restored to the original level established during the 74th Session.

5. Clarify the Universal Service Provisions of PURA95 to Achieve Consistency with the Telecommunications Act of 1996.

Although the universal service directives contained in PURA95 and the federal Telecommunications Act of 1996 (Federal Act) are for the most part compatible, some clarification of PURA95 is necessary to ensure consistency with the Federal Act. Specifically, there are two areas where the Commission finds the need for change or clarification:

A. Conform universal service eligibility requirements with the Telecommunications Act of 1996.

Under the Federal Act, common carriers (including but not limited to LECs) are eligible to seek reimbursements from the federal universal service fund (1) if they offer services that are supported by federal universal service support mechanisms, either using their own facilities or a combination of their own facilities and resale of another carrier's

services basis and (2) if they advertise the availability of such services and the charges therefor using media of general distribution.

Under PURA §3.608(a), eligibility for funding from the Texas universal service fund is limited to local exchange companies. Section 3.002(5) of PURA95 defines "local exchange companies" as telecommunications utilities that have been granted either a certificate of convenience and necessity or a certificate of operating authority. There is no language in PURA95 that would allow otherwise eligible telecommunications providers to receive universal service funding.

To achieve consistency with the Federal Act, the Legislature could provide for such eligibility by substituting "telecommunications providers" for "local exchange companies" in subsections 3.608(a),(d) and (f).

B. Clarify the areas eligible for Universal Service support.

Section 254(b)(3) of the Federal Act provides universal support for rural and high cost areas. In contrast, PURA95 §3.608(a) provides that universal service support should be given to high cost rural areas. The Commission interprets PURA95 §3.608(a) to allow support for all high cost areas in Texas. We recommend deleting the term "rural" from the subsection.

6. Eliminate carrier of last resort (COLR) designation for certificate of convenience and necessity holders and grant the Commission authority to designate COLR responsibility.

Under PURA95 §3.258, a holder of a certificate of convenience and necessity (CCN) has the provider of last resort obligations. Historically, CCN holders have borne the obligation to provide service on demand in exchange for the opportunity to earn a fair return on investment in a single provider environment. With the advent of local exchange competition, the attendant burdens of the COLR designation take on added importance. In order to ensure that the obligation to serve is structured within the competitive framework in a symmetrical and competitively neutral manner, the Legislature could grant the Commission authority to designate COLR responsibility.

7. Clarify the process for implementation of Electronic Access to PUC records.

In 1995, the Legislature authorized the PUC to develop and implement a system for electronic access to PUC records of rulemakings and contested case proceedings (Electronic Access). Under the present system, all PUC filings are made in paper form, and a copy of each is available for public inspection and copying through the Commission's Central Records Division. If an individual cannot visit Central Records in person, the information can be obtained through an open records request. The individual then may have to wait as much as ten days while the information is compiled and copied. Depending on the number of pages in the request and the nature of the request, the charge

for the request may include personnel, overhead, and postage costs in addition to the cost per page. Additionally, the quality of the paper files diminishes over time, as pages are lost or damaged from public handling.

Electronic Access will offer an entirely different method of requesting and receiving copies of PUC filings. When a filing is made, Central Records staff will scan or load the filings into a database, depending on the format in which the documents are filed. After the initial input, the filings will be available almost immediately upon request through Electronic Access, either in the Commission's Central Records Division or remotely from any computer with Internet access. Individuals who visit Central Records in person may continue to inspect and copy the paper copy if they wish, but the process of requesting and receiving files from the Central Records staff will be more cumbersome than using a Central Records computer terminal to access the documents directly. Individuals who wish to review documents away from the Commission will not need to request the documents and wait for them to be copied and mailed, if they have Internet access.

The PUC has invested substantial time and resources to develop Electronic Access in an effort to make PUC information more readily available to individuals. The equipment will be purchased through the lease purchase program administered by the Texas Public Finance Authority. This financing has been approved by the Bond Review Board, except for a modification to the term. Implementation of Electronic Access is scheduled for March 1, 1997.

One problem remains. The 1995 General Appropriations Act authorizes the PUC to implement Electronic Access, but it specifies that the equipment purchased for Electronic Access is to be paid for only from appropriated fee receipts from Electronic Access users. H.B. 1, art. VIII, 74th Leg., R.S. 1995 (Public Utility Commission of Texas budget, Riders 1 and 2). It is unclear whether the Act allows the PUC to develop a fee system independent of the fee guidelines promulgated by the General Services Commission (GSC) pursuant to the Open Records Act. The Bond Review Board and the Comptroller's Office have expressed the view that it does not. On an interim basis, the PUC has obtained a fee waiver from GSC, because none of the existing guidelines directly address the PUC system. The GSC rules presently provide a schedule of charges for information available through computer resources. However, the standard charges appear to account only for the incremental cost of providing information in an electronic medium, and they do not appear to contemplate the specific access method to be used by the PUC.

A clearer solution is a modification to PURA that expressly authorizes the PUC to develop a fee schedule for the Electronic Access system. The Secretary of State has similar authority pursuant to Government Code § 405.018. Such statutory authority would allow the PUC to recover the costs of the system, as it is required to under the Appropriations Act. It would also eliminate the need for the PUC to seek a waiver from GSC each fiscal year, as the agency will otherwise have to do. This solution is supported by the Comptroller's Office and the Bond Review Board.

8. Revise the Administrative Procedure Act to permit an agency to extend the time for adoption of a rule.

Under §2001.027 of the Administrative Procedure Act (APA), a rule proposed by an agency expires if it is not adopted within six months of publication in the Texas Register. This limit is appropriate for many rules; it serves as a check on delayed implementation of necessary regulations. In the context of a complex, controversial rule, however, the six month limit has negative consequences for interested parties and agency staff.

The publication of a proposed rule often provides the starting point for public input and discussion of a controversial rule. The Commission has developed several useful forums for interested parties to consider and debate the content of proposed rules, and to seek common ground between opposing interests. In complex rulemakings, six months has proved to be an inadequate amount of time for the Commission to provide a full opportunity for public participation, to summarize and respond to the often voluminous comments received, and to reflect on the necessary changes needed in the rule.

The large, complicated rulemakings necessitated by the transition to competition are becoming an increasingly large part of the Commission's workload. These rules often involve devoting one or two staff members exclusively to preparing the rule for a period of a month before the rule is adopted. The six month time limit makes it more difficult to bring diverse staff views into consideration, and makes it difficult to adequately review revisions to the rule.

If an extension of the six month limit was allowed for complex rulemakings, these problems would be alleviated. An agency should be permitted to extend the time for adoption of a rule by publishing a notice of the extension and a brief statement of the reasons for it in the Texas Register. Such an extension should be adopted by the agency before the six month period lapses, and should be for a defined period of time. The additional time will result in more efficient use of agency staff resources, and higher quality rules on the complex topics where careful and precise drafting matter most.

9. Clarify PUC post-employment restrictions.

PURA95 contains a number of provisions that place restrictions on the future employment of Commission personnel. Commission personnel, like all state employees, should be held to high ethical standards. It is important for the Commission to maintain its objectivity and independence as it makes decisions which affect the people of Texas. When PURA was first adopted, the Legislature recognized the importance of this issue and included provisions to prevent immediate employment of Commission employees by public utilities. Since that time, two things have occurred. First, revolving door provisions in Government Code 572 now apply to most state employees. Second, the nature of the industry has changed so that the concept of a regulated public utility has been broadened and blurred. There are many entities over which the Commission now has

limited regulatory authority which is far less than the full rate authority it still exercises over some companies.

There is substantial confusion among employees and new applicants about the scope of post-employment restrictions. Additionally, there is an obvious contrast with the restrictions faced by other state employees, including those of other economic regulatory agencies such as the Texas Natural Resource Conservation Commission and the Texas Railroad Commission. At the time the industries being regulated are becoming more competitive, and thus more like industries regulated by other agencies, this contrast becomes more noticeable. The Commission believes it is time to revisit the post-employment provisions to make them more rational, equitable, and clear in light of the changed industry environment. In particular, PURA95 §§1.024(d) and 1.025(a) may hinder the ability of the Commission to attract skilled regulatory analysts. One appropriate solution is to make the Commission's post-employment restrictions consistent with those of other state agencies.

APPENDIX A

LISTING OF INCUMBENT LECs

Incumbent Local Exchange Telephone Carriers

In Order of Access Lines Data Reported 12/31/95	Number of Access Lines in Texas	Gross Revenues
Southwestern Bell Telephone Co.	8,094,444	\$4,381,554,163
GTE Southwest	1,633,592	1,167,941,686
Centel - Sprint	177,179	85,836,818
United - Sprint	134,447	100,991,806
Lufkin-Conroe Telephone Exchange	79,859	50,538,027
Sugar Land - ALLTEL	52,137	33,429,454
Fort Bend Telephone Co.	26,236	16,799,580
Century - San Marcos	26,031	19,938,717
Eastex Telephone Cooperative	24,806	17,856,119
Texas ALLTEL	24,506	18,276,155
Guadalupe Valley Telephone Cooperative	23,135	18,229,806
Kerrville Telephone Co.	19,507	11,686,329
Hill Country Telephone Cooperative	11,612	8,433,855
Etex Telephone Cooperative	11,337	6,256,093
Peoples Telephone Cooperative	8,815	6,417,465
Five Area Telephone Cooperative	6,532	2,842,681
Century - Lake Dallas	6,338	5,736,020
Taylor Telephone Cooperative	5,907	4,009,994
Livingston Telephone Co.	5,600	4,071,648
Brazoria Telephone Co.	5,545	4,979,541
Colorado Valley Telephone Cooperative	5,494	4,242,345
Comanche County Telephone Co.	5,253	2,728,097
Valley Telephone Cooperative	5,388	7,683,653
Cap Rock Telephone Co.	4,332	2,942,387
South Plains Telephone Cooperative	4,331	2,875,934
Big Bend Telephone Co.	3,920	7,296,431
Central Texas Telephone Cooperative	3,900	4,170,120
Century - Port Aransas	3,519	2,368,596
Southwest Texas Telephone Co.	3,407	3,175,699
Wes-Tex Telephone Cooperative	3,263	2,066,143
Muenster Telephone Corp. of Texas	3,016	3,504,299
Mid-Plains Rural Telephone Cooperative	2,340	2,450,592
Santa Rosa Telephone Cooperative	2,181	1,270,850
Poka-Lambro Telephone Cooperative	2,042	3,215,536
Coleman County Telephone Cooperative	1,951	1,432,382
West Texas Rural Telephone Cooperative	1,769	2,599,055

Incumbent Local Exchange Telephone Carriers

In Order of Access Lines Data Reported 12/31/95	Number of Access Lines in Texas	Gross Revenues
Industry Telephone Co.	1,748	1,535,016
Electra Telephone Co.	1,700	1,783,877
Community Telephone Co.	1,623	1,155,637
Ganado Telephone Co.	1,396	1,376,479
Blossom Telephone Co.	1,212	793,594
Brazos Telephone Cooperative	1,140	1,335,042
Cameron Telephone Co.	1,139	881,698
XIT Rural Telephone Cooperative	1,124	2,006,403
Lake Livingston Telephone Co.	1,096	843,477
Lipan Telephone Co.	1,090	999,437
La Ward Telephone Exchange	999	1,017,587
Riviera Telephone Co.	970	1,052,453
Tatum Telephone Co.	857	1,189,208
E.N.M.R. Telephone Cooperative	811	524,418
North Texas Telephone Co.	809	345,669
Alenco Communications	798	1,369,233
Cumby Telephone Cooperative	664	593,333
Dell Telephone Cooperative	590	1,754,422
Southwest Arkansas Telephone Cooperative	484	379,075
Panhandle Telephone Cooperative	203	41,434
Border to Border Communications	69	186,401
	43	36,382
Leaco Telephone Cooperative	11	8,870
Caddoan Telephone Co.	not reporting	n/a

Source: Responses to 1996 ILEC data requests, PUC 1995 earnings monitoring reports.

APPENDIX B

ECONOMICS OF COMPETITION

It may be helpful to outline the key elements of the economic theory that have refined, and in some cases even given rise to, many of our notions of the characteristics and benefits of competition. Thus we first will highlight the important features of the model of *perfect competition*. Then we will contrast these attributes with those of the *pure monopoly* model, not only to see why unchecked monopoly power is so undesirable, but also why -- if the relevant technology tends to yield producers that can each supply a large share of the market -- attaining even a rough approximation of *certain aspects* of perfect competition may be unrealistic. We then briefly describe several real-world market structures, and consider the degree to which they are likely to confer the benefits of competition.

Adam Smith and other classical economists stressed the critical importance of competition, even in an imperfect form. After 1870 economists began formulating the abstract model of "perfect competition," from which certain social-welfare conclusions could be derived. The perfectly competitive model -- an idealized, polar case that no real-world markets fully match -- still provides important insights into the benefits that competition in actual markets may approximate. Among the assumptions of the "pure" model are the following:

- a vast number of buyers and sellers of the same, homogeneous product (with the small size of the sellers owing in part to underlying technology);
- perfect mobility of people and resources;
- profit-maximizing behavior by producers;
- "utility" - (or welfare)-maximizing behavior by consumers;
- complete knowledge by all buyers and sellers of all relevant present and future conditions in all markets; and
- an absence of non-market spillover effects, or externalities, affecting third parties. (A classic example of a negative externality in consumption is air pollution caused by smoking cigarettes and driving cars; air and water pollution caused by various manufacturing processes are classic examples of negative externalities in production.)

Under these extreme conditions, each buyer and seller rightly believes that he or she can have no discernible effect on the current product price. For example, a buyer can buy all of a product she wants at the current price in the market, without increasing that

price, and a producer of this product can sell all he wants at the same price, without depressing that price. On the other hand, this producer will be unable to sell *any* of the product at a slightly higher price, because consumers will buy all they want from other producers at the going market price. (All sellers and buyers thus are “price takers” rather than “price makers”; in economic terms, the elasticity of demand faced by each seller, and the elasticity of supply faced by each buyer, are infinite.) The product price is driven down to marginal cost (the extra cost of producing one more unit), and the long-run equilibrium price also will equal minimum average cost (including a profit just sufficient to attract needed capital).¹ If all markets in the economy are perfectly competitive, an economically efficient outcome will result: with available resources, the value of total output in the economy is maximized. Economic theory describes this state as a “Pareto-optimum”: no one can be made better off without someone else being made worse off.²

By way of comparison, a pure monopoly is at the opposite end of the spectrum from the perfectly competitive paradigm. Especially if there are large barriers to entry into the field by other producers, the monopolist faces little actual or potential competition from other firms producing readily substitutable products. If unregulated, that firm can jointly set price and output levels so as to reap excess profits. Strictly from the standpoint of economic efficiency, the problem with the monopolist’s solution is that too little of the product is produced. This result occurs because the monopolist’s profits are maximized when the marginal cost of supply is still well below the marginal benefit (willingness to pay) to consumers, as reflected in the product price. In addition to objecting to this economically inefficient outcome of insufficient output, though, most people also condemn as unfair the greater inequality resulting from the monopolist’s high prices.

Yet at least part of the reason why a monopolist exists usually lies in the presence of economies of scale and, perhaps, scope. One producer is able to meet market demand for the product(s) at less total cost than could a group of smaller firms.³ To the extent that an industry is characterized by such “natural monopoly” conditions, a society would be foolish not to exploit the cost advantages offered by having the product supplied by a single firm. It is in such cases that regulation (or in some instances state ownership and operation) of the industry is typically justified. With respect to a single-product producer, the classic objective of regulation is, while safeguarding product quality, to impose appropriate price ceilings to induce the monopolist to produce well beyond the point at

¹ If the market price exceeds minimum average cost, firms will enter the market, increasing market supply and thereby exerting downward pressure on the price; if the market price is below the minimum average cost, firms will exit the market, decreasing market supply and thereby putting upward pressure on the price.

² “Pareto” refers to the Italian economist Vilfredo Pareto (1848-1923). Though important, this result by no means guarantees a true “social-welfare optimum,” for it completely ignores notions of equity. Specifically, varying the initial distribution of incomes will yield different Pareto-optimal mixes and values of outputs. It is theoretically possible for a Pareto-optimal allocation to feature large-scale, chronic malnutrition and even famine.

³ Economies of scale refer to the production of a single product; economies of scope, to multiple products.

which profits are maximized. When dealing with a multi-product firm, an additional objective is to avoid cross-subsidization.⁴ However, objectives other than economic efficiency may legitimately affect pricing policies; the goal of universal telephone service is a relevant example, as it combines equity and efficiency aspects. Ideally, the sense in which regulation is then serving as a substitute for competition is threefold:

- production is much closer to the socially desirable level;
- price is lowered and excess profits are minimized;⁵ and
- product quality is maintained even as productive efficiency and cost-minimizing and/or quality-enhancing innovation are encouraged.

How relevant is the perfectly competitive model in our examination of today's telecommunications market? Most economists would likely agree that it is useful, but that its welfare theorems and behavior predictions must be used with caution. A model based on perfect competition does not objectively describe the real world. Yet it is still used as a yardstick by which to measure the performance of actual markets, as indicated in the above remarks on monopolies.⁶ Economists have identified at least six classifications for actual markets, ranging from (virtually) *pure competition*, where each competitor has only a trivial market share of a nearly undifferentiated product, to *pure monopoly*, such as with water supply in most towns and, at least until recently, local electric and telephone service.⁷ In between are the following market types:

monopolistic competition, in which real or imagined brand differences and/or location confer only limited market power to the numerous competitors, none of whom has over 10 percent of the market;

⁴ William J. Baumol and J. Gregory Sidak, *Toward Competition in Local Telephony* (MIT Press, Cambridge, Massachusetts and London, England, and American Enterprise Institute for Public Policy Research, Washington, D.C., 1994), ch. 5.

⁵ In the absence of subsidies, setting prices equal to marginal cost is infeasible in a "strong natural monopoly," in which average cost declines over the relevant range of output, for true marginal-cost pricing will not allow the firm to recover its total costs. Similarly, a strict policy of setting prices just high enough to recover a service's incremental cost will lead to under-recovery for a multi-product firm characterized by significant joint and/or common costs.

⁶ The model of perfectly contestable markets, developed by William J. Baumol, John C. Panzar, and Robert D. Willig in the early 1980s, may be considered a generalization of the perfectly competitive model, as it allows for economies of scale, so long as entry into and exit from the market are perfectly costless. (Arguably, such can never be the case if scale economies exist.) While acknowledging it to be just as fictional an ideal as perfect competition, some economists advocate using its theoretical results to guide regulatory policy, at least partly because it is compatible with a small number of producers in an industry. See Baumol and Sidak, *op. cit.*, ch. 3-8; the original book by Baumol, Panzar, and Willig is *Contestable Markets and the Theory of Industry Structure*, rev. ed. (Harcourt Brace Jovanovich, San Diego, California., 1988).

⁷ This classification scheme is from Shepherd, *op. cit.*, p. 4.

loose oligopoly, in which the four largest firms in the market have a combined market share of no more than 40 percent of the market;

tight oligopoly, in which the four largest firms have a combined market share of at least 60 percent; and

the *dominant firm*, with at least a 50 percent market share.

Ideally, the degrees of competition could be inferred directly from elasticities of demand and/or from differences between price and marginal cost. Practical difficulties in obtaining reliable estimates of these values have led to a reliance on market share, as in four-firm concentration ratios and the **Hirschman-Herfindahl Index (HHI)**, which is defined as the sum of the squares of the market shares, in percentages, of all competitors in the market. The HHI must lie between 0 (where no firm would have any measurable market share) and 10,000 (for a complete monopoly). The *1992 Merger Guidelines* of the Department of Justice deem an HHI of under 1000 to indicate an unconcentrated market, and an HHI of over 1800 to indicate a highly concentrated market.⁸

As a rule, profits tend to be higher the closer a firm is to the monopoly end of the range. This effect may be due to the presence of scale economies and/or other barriers to entry, such as government contracts, patents, and unequal access to credit. Collusive behavior by firms (to set and keep prices near the level that would maximize profits for the group as a whole) is also easier and more likely to occur toward the monopoly end of the range; tacit collusion probably is common, at least at times, in tight oligopolies. (On the other hand, price wars, possibly involving predatory pricing, also may break out in even tight oligopolies. Oligopolists always have an incentive to collude, but also to cheat on a collusive agreement, to gain market share and profits.)

According to economist William G. Shepherd, the categories of monopolistic competition and even loose oligopoly tend to be “*effectively competitive*; their results consistently come close to the competitive ideal of efficiency and innovation.”⁹

The quote in Chapter 3 from Clair Wilcox is a well articulated description of the essence of meaningful competition. Nevertheless, as is suggested by the heavy use of such imprecise terms as “substantial” and “substantially,” determining whether a particular market is effectively competitive inevitably will amount to a judgment call.

⁸ For more on measures of market power, see Shepherd, *op. cit.*, ch. 1; Davis et. al., *op. cit.*, ch. 8; and William J. Baumol and J. Gregory Sidak, *op. cit.*, ch. 3.

⁹ Shepherd, *op. cit.*, p. 4. Emphasis in original. Shepherd notes (chapter 1) that economists disagree on the exact conditions required for competition to be effective. He states, however, that most economists believe “at least eight or ten comparable firms in each market are needed for competition to be effective” on a consistent basis. (P. 9.)

APPENDIX C

THE PUBLIC UTILITY REGULATORY ACT OF 1995: KEY TELECOMMUNICATIONS-RELATED CHANGES

House Bill 2128, which was signed by Governor George Bush on May 26, 1995, introduced sweeping changes in the way in which telecommunications utilities may operate and the way in which they are regulated in Texas. The complex 195-page bill significantly changed the Public Utility Regulatory Act of 1995 (PURA95). The bill marked the completion of a process that spanned several years in which telecommunications regulation was studied by state legislators, regulators, utility representatives, advocacy groups, and the public. It began with the review of the PUC by the Sunset Advisory Commission in 1992, followed by the 73rd Texas Legislature in 1993, the Joint Interim Committee on Telecommunications in 1994, and finally by the 74th Texas Legislature in 1995. HB 2128 introduced new mechanisms whereby competitors -- either facility-based companies or resellers -- may enter the local telecommunications service market. The incumbent telephone companies were given the option of electing into a new regulatory framework based on pricing rather than on rate of return. The bill created a new fund that will provide about \$95 million each year for distance education, information sharing, and telemedicine programs in order to stimulate demand for new telecommunications technologies.

COMPETITIVE ENTRY

Incorporating the changes specified in HB 2128, PURA95 now contains extensive policy language directing the PUC to take steps to enhance the development of competition, to ensure that services are available to individuals with disabilities, and to protect the public interest while fostering competition and advancement in telecommunications.

PURA95 permits competitors to provide local exchange services by obtaining a **certificate of operating authority (COA)** or a **service provider certificate of operating authority (SPCOA)** rather than through the more restrictive certificate of convenience and necessity (CCN). Designed for facility-based local exchange competition, the COA requires the certificate holder (at least the first one in an area) to serve customers in a 27-square-mile minimum "build-out area" within 30 days of the customer request. The facility build-out requirements for the area are to be phased in over a six-year period. The COA holder is not allowed to serve more than 40 percent of its service area by reselling the incumbent local exchange carrier's (ILEC's) facilities. Cellular service may not be used to satisfy the build-out requirement, but personal communications systems or other wireless communications may be so used. The PUC is given authority to review the build-

out requirements after Sept. 1, 1997. In an area served by a small incumbent telephone company, the COA area must conform to the existing central office serving area. Though the holder of a COA will not have "provider of last resort" responsibilities, it is required to offer and render continuous and adequate service to any customer in its certificated area.

An SPCOA may be granted to a company that wishes to provide local exchange telephone service by reselling the facilities of the incumbent local exchange carrier. PURA95 specifies the conditions governing this resale of facilities. The SPCOA holder may resell flat rate local exchange services at a five-percent or zero-percent discount; in addition, it may resell incumbent LEC facilities using a usage-sensitive loop resale service. In contrast, the only avenue under PURA95 for a COA holder to resell the ILEC's facilities is by purchasing from the ILEC's usage sensitive loop resale tariff. PURA95 prohibits a COA holder from receiving an SPCOA for the same territory. PURA95 also bars any interexchange carrier with more than 6 percent of intrastate switched-access minutes of use from receiving an SPCOA.

Except where new entrants are granted a COA or SPCOA, local exchange carriers (LECs) that currently are authorized to carry "1+" and "0+" dialed intraLATA calls will continue to carry those calls exclusively until *all* Texas LECs are allowed to provide interLATA long distance service. (Southwestern Bell, the only Texas LEC still barred from providing such service, will be allowed to enter the interLATA market when it establishes, to the satisfaction of the FCC, that it meets various conditions enumerated in the Federal Telecommunications Act of 1996 (FTA96) The Texas PUC is to play an advisory role in this process.)

The PUC is required to conduct proceedings to establish a "transitional flexibility plan" for the ILEC in the area in which a competitor is providing service. In addition, the PUC is given authority to grant price deregulation in an area where it finds that the incumbent LEC is no longer dominant based on factors specified for a market power test.

In order to ensure the fairness of competition and acceleration of improvements in telecommunications, the PUC is given authority to implement **competitive safeguards**, including items related to network unbundling, resale tariffs, imputation of prices into LEC services, number portability, costing and pricing, and interconnection.

PURA95 contains new provisions prohibiting discrimination by municipalities or property owners against holders of a CCN, a COA, or an SPCOA with respect to fees and access for rights-of-way, pole attachments, and other access to property.

CHANGES IN RATE REGULATION

ILECs are allowed to elect into an **incentive regulation** program (Subtitle H) under which their services would be classified into three categories, or "baskets": Basket I - basic network services; Basket II - discretionary services; and Basket III - competitive services. Rates for basic network services in Basket I may not be increased for four years,

except in specific instances with PUC approval, but rates may be reduced. Basket II services include 1+ intraLATA toll, operator services, certain custom calling features, centrex service, billing and collection, ISDN (Integrated Services Digital Network), and new services. Prices for Basket II services may be set between a "floor" of long-run incremental cost (LRIC) and a "ceiling" that is initially set at current rate levels. Following the completion of proceedings to implement the competitive safeguards mandated in Subtitle J, the ceiling rate level for Basket II services may be increased with PUC approval. Basket III services include WATS, 800, private line, special access, and other specified services, and may be flexibly priced above the company's LRIC. Flexible pricing includes volume and term discounts, zone density pricing, packaging, customer specific contracts, and other promotional pricing flexibility. However, the rates may not be preferential, prejudicial, or discriminatory. The legislation sets out the methods under which the PUC may move services from one basket to another. A company that elects into the incentive regulation plan is not subject to complaints or hearings related to its rates, revenues, or rate of return.

As of August 1996, Southwestern Bell and GTE have elected into incentive regulation under Subtitle I of PURA95.

HB 2128 allows **small telephone companies** (less than 31,000 lines) to offer expanded local calling service or new services, or to make minor changes in rates by filing a statement of intent with the PUC and providing notice to their customers. A minor change is defined as one that increases the company's intrastate gross revenues by less than 5 percent in a year, or that increases basic local access line rates by less than 10 percent. The change may be appealed to the PUC if a specified number of customers or an interexchange carrier protest the change. The PUC is required to develop rules that simplify other regulatory processes applied to small companies.

Telephone cooperatives are allowed to become partially deregulated if their members vote to do so. Rate changes are not confined to "minor" changes, the changes may be appealed to the PUC, and members may vote to re-regulate the cooperative if they wish.

NEW TECHNOLOGY AND INFRASTRUCTURE

The **Telecommunications Infrastructure Fund (TIF)** created by this legislation will amass approximately \$95 million annually for ten years. Its purpose is to provide funding through grants and loans for projects that will utilize the advanced telecommunications system in Texas for public purposes. Two separate accounts have been established: one is funded by telecommunications utilities (e.g., ILECs and new local-service providers, IXCs, and competitive access providers (CAPs)) and is earmarked for equipment purchases and wiring for public schools; the other portion is funded by commercial-mobile-radio-service providers (including cellular carriers), and may be used for equipment, wiring, program development, training, or any statewide

telecommunications network, as well as for public education.¹ The TIF will be administered by a nine-member board, appointed by the legislative leadership and the Governor.

PURA95 lays out 10 policy goals for the development of an advanced telecommunications **infrastructure** in the state. Telephone companies that elect into incentive regulation are required to meet certain infrastructure goals, including customer access to end-to-end digital connectivity, digital switching offices, and broadband interoffice facilities. Electing carriers are also required to provide broadband access upon request to educational institutions, libraries, telemedicine centers, public or not-for-profit hospitals, and other locations, at discounted rates and with no special construction charges. A carrier other than Southwestern Bell or GTE that does not elect into an incentive regulation plan but makes a six-year infrastructure modernization commitment, and if the carrier agrees not to increase rates during the same period, then that carrier is also exempted from complaints or hearings related to its rates, revenues, or rate of return for the same six years.

This regulatory option is detailed in Subtitle I, Infrastructure Plan for Rate of Return Companies. As of August 1996, Sprint - United and Sugar Land have elected into the Subtitle I plan.

CONSUMER PROTECTION

PURA95 specifically defines **basic local telecommunications service**, and establishes the **minimum services** to be provided by all carriers holding a CCN or COA by the end of the year 2000. These minimum services include equal access, single party service, tone dialing service, custom calling, and access to digital switching

The PUC is given limited regulatory authority over providers of **pay telephone service**, pertaining to registration, price ceilings, posting requirements, and other items. Providers of pay telephone service may impose a surcharge of 25 cents for making dial-around "1-800" type calls on pay phones.

PURA95 requires providers of **Caller ID services** to provide consumer information to their customers. The PUC is required to establish the Caller ID Consumer Education Panel to review the effectiveness of consumer education on Caller ID. In addition, the legislation contains prohibitions against the use of **customer proprietary**

¹ PURA95 actually specified that \$75 million would come annually from the radio-service providers and \$75 million would come annually from the telecommunications utilities. A district court ruled, however, that the share allotted to radio-service providers was disproportionately large relative to their revenues, and ordered that these providers pay only the same rate per total revenue that the telecommunications utilities pay.

network information (CPNI) for any purpose not related to the sale, provision, or billing and collection of telecommunications or enhanced services.

The PUC was given additional authority to adopt mechanisms that will use the **Universal Service Fund (USF)** to maintain reasonable rates. The current use of the USF in Texas (there is another USF for interstate programs) is to maintain basic services at reasonable rates, as well as to fund specific targeted programs. The new legislation expands the authority of the PUC in adopting new applications of the USF. For companies other than Southwestern Bell, the USF may be used to recover revenues that might be reduced due to changes in the interstate USF and other federal rate mechanisms. Funding from the USF is limited to local exchange companies that offer service to every consumer within their certificated area and abide by PUC service quality rules.

MISCELLANEOUS PROVISIONS

PURA95 extended the PUC's "sunset date" to September 1, 2001.

The PUC is given the authority to require telecommunications utilities to prepare reports on their use of historically underutilized businesses.

The existing PURA provisions for **expanded local toll-free calling service (ELCS)** are clarified and modified somewhat by PURA95. It now clarifies that the 22-mile distance in the original language refers to the distance *between switching offices*. The revisions require the petitioning exchange to demonstrate that it shares a community of interest, such as a school, hospital, or other relationship with the exchange requested, if the exchanges are between 22 and 50 miles apart. Also, PURA95 was revised to allow expanded toll-free calling to *up to five exchanges* at the \$3.50/residential and \$7.00/business rate, with an additional charge of \$1.50 for each additional exchange requested.

PURA95 prohibits LECs with more than 100,000 Texas access lines from providing advertising agency services within the state. It also prohibits ILECs from engaging in the provision of electronic publishing or audio or video programming unless it is done through a separate affiliate or joint venture arrangement. Moreover, it prohibits Southwestern Bell from providing information technology services, such as management consulting or systems development, integration, or management. PURA95 does allow, however, the provision of video dial tone services in accordance with FCC rules.

HB 2128 amended the Property Code §74.3011 to establish the new Rural Scholarship Fund and the Urban Scholarship Fund. Before PURA was revised, telephone companies would transfer funds from unclaimed deposits to the state treasury. Under the new provisions, up to \$400,000 would be transferred instead to the rural fund and up to \$400,000 to the urban fund. These funds would enable needy students from rural and urban areas to attend college, technical schools, and other post-secondary schools. The scholarship funds are to be established and administered by one or more LECs.

RESPONSIBILITIES OF THE PUC

The revisions to PURA95 created a complex transition mechanism to move from the current previous level of regulation toward a more competitive, less regulated environment. It also established network modernization goals and funding to assist in the deployment of advanced telecommunications services throughout the state. For some years to come, the PUC will continue to undertake significant additional work in rulemakings, policy proceedings, monitoring and studies during the period of transition.

APPENDIX D

HIGHLIGHTS OF THE FEDERAL TELECOMMUNICATIONS ACT OF 1996

On February 8, 1996 President Bill Clinton signed new legislation, known as the federal Telecommunications Act of 1996 (FTA96), that lays the foundation for sweeping change in the telecommunications industry. FTA96 amends the Communications Act of 1934 and directs the Federal Communications Commission (FCC) to engage in a massive rewriting of federal rules applicable to telecommunications carriers. The primary purpose of FTA96 is to open local telecommunications markets to competition. Pursuant to this end, FTA96 establishes standards for interconnection of telecommunications networks; requires ILECs to allow competitors to purchase unbundled network elements from the ILEC; requires ILECs to offer for resale at wholesale rates any telecommunications service the ILECs sell at retail to non-carrier customers; requires Southwestern Bell and the other Bell Operating Companies (BOCs) to satisfy a number of specific conditions before they may provide interLATA long-distance service in their home regions; and sets new policies regarding the provision of universal service. In addition, FTA96 contains sections relating to general regulatory reform, broadcast and cable-television services, violence and obscenity over telecommunications networks, and other miscellaneous provisions. The majority of these latter provisions have little relevance to the work of the Texas PUC, however, and therefore will not be discussed below.

NEGOTIATION AND ARBITRATION

FTA96 allows an ILEC, upon receiving a request for interconnection, purchase of network elements, and/or resale of services, to negotiate a binding agreement with the requesting telecommunications carrier. Either party may request the state utility commission to mediate any differences during negotiations. Any completed agreement must be submitted to the state commission for approval. The commission, which has 90 days to issue a ruling, is to approve the agreement if it does not discriminate against a third-party carrier and if it is otherwise consistent with the public interest.

During the period from the 135th through the 160th day after an ILEC receives a request for negotiation, any party to the negotiation may request the state commission to arbitrate any unresolved issues. The commission must complete the arbitrated resolution of issues within nine months from the date the ILEC received the negotiation request. Moreover, the commission must ensure that the arbitrated agreement complies with the requirements of FTA96 §251 (concerning such matters as interconnection, collocation, resale, number portability, and access to unbundled elements) and the related pricing standards in §252(d).

If the state commission is unable to meet the nine-month deadline for completing an arbitration proceeding, the FCC is to assume responsibility for completing the proceeding.

INTERCONNECTION

Section 251, Interconnection, establishes three possible entry paths for new local-service competitors. These paths are (1) as a facilities-based carrier, interconnecting with the ILEC's facilities; (2) the purchase of unbundled network elements from the ILEC; and (3) the resale of the ILEC's retail services. To ensure a seamless national telecommunications system, §251 requires all LECs (including new providers) to interconnect with other carriers in accordance with standards specified elsewhere in FTA96. This section also imposes on all LECs other obligations pertaining to resale, number portability, dialing parity, access to rights-of-way, and reciprocal compensation. ILECs have several additional obligations: to negotiate and provide interconnection, at any technically feasible point, at cost-based rates; to provide access to unbundled network elements; to offer at wholesale rates the resale of retail services; to provide notice of network changes; and to allow collocation of equipment necessary for a competitor to interconnect or gain access to unbundled elements.

A rural LEC (defined later) is exempt from the additional duties just noted until (1) it receives a bona fide request for interconnection, services, or network elements, and (2) the state commission determines that the request is not unduly burdensome, is technically feasible, and is consistent with the universal-service provisions of FTA96. In addition, any LEC with fewer than two percent of the nation's subscriber lines may petition the state commission for a suspension or modification of all requirements imposed on ILECs.

RESALE

All LECs must resell their services without imposing unreasonable or discriminatory conditions or limitations. ILECs must offer for resale at wholesale rates any services offered at retail to their customers who are not telecommunications carriers. In arbitrated agreements these rates must be equal to the retail rates net of the portion attributable to any marketing, billing, collection, and other costs the ILEC will avoid.¹

¹ In its August 1996 Local Competition Order in CC Docket 96-98, the FCC established a default discount range of 17 percent to 25 percent for state commissions to use until they determine the portion of each retail rate that will be avoided, using the methodology outlined in the Order. The pricing provisions of the FCC's Order have been stayed by the 8th Circuit Court of Appeals, pending appeal of these provisions of the order.

ACCESS TO UNBUNDLED NETWORK ELEMENTS

FTA96 requires ILECs to provide non-discriminatory access to their network elements on an unbundled basis, in order to allow competitors to purchase these elements and combine them as needed to provide local service. As previously noted, rural ILECs initially are exempt from these unbundling requirements.

The FCC's August 1996 local competition decision identified seven minimum network elements ILECs must provide: network interface devices, local loops, local and tandem switches, interoffice transmission facilities, signaling and call-related database facilities, operations support systems and information, and operator and directory assistance facilities. States may require unbundling of additional elements. The FCC's Order is under appeal in Federal Court.

NUMBER PORTABILITY

Number portability, the ability of a customer who changes local-service providers to retain his or her existing phone number, is needed for new entrants not to be competitively disadvantaged. Accordingly, FTA96 decrees that all LECs must provide number portability to the extent technically feasible, in accordance with FCC requirements. These requirements, issued in July 1996 in Docket No. 95-116, specify the performance criteria an acceptable "permanent" plan must satisfy; they do not mandate a specific plan as such.

NUMBER ADMINISTRATION

FTA96 requires the FCC to create or designate one or more impartial entities to administer the North American Numbering Plan, which was previously administered by Bellcore, an affiliate of the BOCs. [Further discussion of numbering issues is contained in Chapter 6.]

RURAL LEC DEFINITION

FTA96 defines a "rural LEC" as a LEC meeting one of the following criteria:

- It serves fewer than 50,000 access lines.
- It serves only incorporated areas of under 10,000 inhabitants.
- It serves a study area of fewer than 100,000 access lines.

- It has under 15% of its access lines in communities of over 50,000 people at the date FTA96 was enacted.

As discussed previously, rural LECs are exempt initially from several obligations faced by ILECs, beyond those faced by all LECs.

UNIVERSAL SERVICE

FTA96 requires the FCC to refer universal-service issues to a federal-state joint board for development of a plan. Within 15 months from the enactment of FTA96 (by May 8, 1997), the FCC must complete a rulemaking proceeding to implement a comprehensive scheme, featuring an explicit, competitively neutral support system. This plan must be consistent with certain universal-service principles enunciated in FTA96. These principles include the availability of quality services at reasonable and affordable rates; access to advanced telecommunications and information services in all regions; services and rates for consumers in rural and/or high-cost areas that are reasonably comparable to those available in urban areas; and discounted rates for schools, libraries, and health-care providers for advanced services. Rate averaging of interstate and interexchange services is also decreed by FTA96.

ENTRY BARRIERS

FTA96 requires that no state or local law or regulation may prohibit or have the effect of prohibiting any entity from providing intra- or interstate services. However, states may impose competitively neutral requirements to preserve universal service, protect the public safety and welfare, ensure continued quality of service, and safeguard consumers' rights. The FCC has authority to preempt any state or local law or regulation that constitutes an illegitimate barrier to entry.

INTERLATA SERVICE

By superseding the Modification of Final Judgment and the accompanying AT&T, GTE, and McCaw consent decrees, FTA96 permits GTE to provide interLATA service immediately. It also allows BOCs the immediate ability to provide interLATA service outside their home regions. It permits BOCs to provide in-region interLATA service only when they meet a number of specific conditions. One such condition is the existence of either of the following: (1) the BOC has completed at least one binding interconnection agreement with a facilities-based competitor that the FCC approves under §252; or (2) no facilities-based competitor has requested such interconnection, and the state commission has approved, in accordance with §252(f), an acceptable BOC statement of generally available terms and conditions. Additionally, the BOC must satisfy a 14-point *competitive checklist*. This checklist requires the BOC to provide the following:

- Interconnection in accordance with specified technical and pricing requirements.
- Non-discriminatory access to unbundled network elements.
- Non-discriminatory access to poles, ducts, conduits, and rights-of-way owned or controlled by the BOC, at just and reasonable rates.
- Local-loop transmission from the central office to the customer's premises, unbundled from local switching or other services.
- Unbundled local transport from the ILEC's switch.
- Unbundled local switching.
- Non-discriminatory access to 911 and E911 services, directory-assistance services, and operator-call-completion services.
- Listings in the ILEC's white-page directory for customers of competitors.
- Non-discriminatory access to phone numbers for assignment to other carriers' customers, and compliance with numbering-administration guidelines/rules when such are established.
- Non-discriminatory access to databases and associated signaling necessary to route and complete calls.
- Full compliance with the FCC's number-portability regulations. Before these are issued, the BOC must provide interim number portability through remote call forwarding, direct inward dialing trunks, or other comparable arrangements, with as little impairment of functioning, quality, reliability, and convenience as possible.
- Non-discriminatory access to the services and information needed to allow the requesting carrier to implement local dialing parity in accordance with §251(b)(3).
- Reciprocal compensation arrangements in accordance with §252(d)(2).
- Resale of telecommunications services in accordance with §§251(c)(4) and 252(d)(3).

Before making a determination to allow a BOC to provide interLATA service, the FCC must consult with the relevant state commission to ascertain whether the above requirements have been met. The FCC also must consult with the U.S. Attorney General as to the desirability of permitting the BOC to enter the interLATA market.

INTRALATA DIALING PARITY

A BOC is required to provide intraLATA dialing parity if it enters the interLATA market. Otherwise, a state may not require a BOC to implement intraLATA dialing parity until after three years from the enactment of FTA96. FTA96 excepts from this prohibition a state that issued an order before December 19, 1995, requiring a BOC to implement intraLATA dialing parity.

ENTRY INTO THE TELECOMMUNICATIONS MARKET BY ELECTRIC UTILITIES

FTA96 amends the Public Utility Holding Company Act to allow regional electric utility holding companies to establish "exempt telecommunications utilities" (ETCs) for the provision of telecommunications service. These ETCs are subject to various requirements relating to auditing and approval of certain financial transactions; often the state commission has discretion to order audits and approve transactions.

AUDIO/VIDEO SERVICES

FTA96 removes the ban on cross-ownership of cable television and telecommunications carriers. A telecommunications carrier may provide video programming as a cable TV operator or by means of an "open video" (video dial tone) format. The "Prohibition on Buy Outs" in the new law strictly limits the mixing in the same service area of ownership or management interests between cable TV companies and LECs or LEC affiliates; with exceptions, it also forbids joint ventures or partnerships to provide telecommunications services or direct video programming to subscribers in the same market.

ELECTRONIC PUBLISHING

For four years, BOCs are not allowed to enter the electronic-publishing business except through a separate subsidiary or a joint venture. The electronic-publishing provisions in FTA96 are quite similar to those in PURA95.

REGULATORY FLEXIBILITY

FTA96 directs the FCC and state commissions to encourage the deployment of advanced telecommunications capability to all Americans, through the use of such means as price caps, regulatory forbearance, measures to promote local competition, and other methods that remove barriers to infrastructure investment. Within 30 months of the

enactment of FTA96, the FCC is to begin an inquiry to assess this availability; if it finds inadequate availability, it must take immediate action to accelerate deployment by removing barriers to infrastructure investment.

The new law directs the FCC to forbear from applying any regulation or statutory provision if such is found to be unnecessary or if forbearance will promote competition. State commissions are forbidden from enforcing provisions of FTA96 on which the FCC has decided to forbear.

FINAL POINTS ON STATE RESPONSIBILITIES

Passage of FTA96 necessitates much greater coordination between the FCC and state commissions, including the Texas PUC. In many cases the PUC must take primary responsibility for ensuring compliance with federal requirements. In others, the FCC will have primary responsibility, but will consult with the PUC in making its determination. Because of the need to harmonize state laws and commission rules with new federal requirements, the Texas PUC is likely to face increasing complexity in its contested cases and rulemakings.

APPENDIX E

COMPETITIVE CERTIFICATION

COA APPLICATIONS AT THE PUC*

<i>Applicant</i>	<i>Location</i>	<i>Date filed</i>	<i>Disposition</i>	<i>Date of disposition</i>
Teleport Houston	Harris Co.	9/1/95	Refiled as SPCOA	11/10/95
TCG Dallas	Dallas Co.	9/1/95	Refiled as SPCOA	11/10/95
Kingsgate Telephone	Harris Co.	9/1/95	Approved	12/6/95
Time Warner Communications	Williamson & Travis Cos.	11/20/95	Approved	3/27/96
AT&T Communications of the Southwest, Inc. [†]	GTE Area	2/29/96	Approved	4/24/96
Page One Communications	Statewide	5/9/96	Withdrawn	7/31/96
Sprint Communications [†]	GTE Area	5/30/96	Approved	8/21/96
Sprint Communications [‡]	Non-GTE	6/3/96	Approved	10/9/96
MCIMetro Access Transmission Services, Inc. [†]	GTE Area	6/5/96	Approved	8/7/96
Southwestern Bell Telephone Company [†]	GTE Area	6/7/96	Approved	8/7/96
Plum Creek Telephone Company	GTE Area	7/31/96	Approved	10/9/96
Paramount Wireless Communication of Texas, LLC	Statewide	9/3/96	Pending	--
Poka-Lambro Telephone Company [†]	GTE Area	9/5/96	Approved	11/7/96

* These data are accurate as of December 12, 1996.

† These applications are for GTE's service area. Section 3.2531(i) removes the buildout requirements in areas in which the ILEC's restrictions against providing interLATA services have been removed; enactment of FTA96 removed GTE's interLATA restrictions.

‡ This application is for the areas in Texas not presently served by GTE, and includes a request for a temporary waiver of the buildout requirements.

COA APPLICATIONS AT THE PUC (CONT'D)

<i>Applicant</i>	<i>Location</i>	<i>Date filed</i>	<i>Disposition</i>	<i>Date of disposition</i>
Sienna Telephone Company	Fort Bend & Brazoria Cos.	9/6/96	Approved	11/7/96
GTE Card Services, Inc. [∇]	Statewide	10/2/96	Pending	--
W.T. Services, Inc.	Bovina & Friona (GTE Exchanges)	10/7/96	Pending	--
MCImetro Access Transmission Services, Inc. ^Ω	S. W. Bell Area	10/25/96	Withdrawn	12/6/96
AT&T Communications of the Southwest, Inc. [‡]	Non-GTE (Exchanges with under 31,000 lines)	11/19/96	Pending	--
MCImetro Access Transmission Services, Inc. [∇]	S. W. Bell Area	12/6/96	Pending	--

[∇] Each of these applications includes a request for a waiver of the buildout requirements.

^Ω This application, for Southwestern Bell's service area, asserted that FTA96 preempts the buildout requirements, but did not specifically request a waiver of such requirements.

[‡] This application is for the areas in Texas not presently served by GTE, and includes a request for a temporary waiver of the buildout requirements.

SPCOA APPLICATIONS AT THE PUC

<i>Applicant</i>	<i>Date filed</i>	<i>Disposition</i>	<i>Date of disposition</i>
Teleport Houston**	9/1/95	Approved	2/22/96
TCG Dallas**	9/1/95	Approved	2/22/96
U.S. Long Distance	9/1/95	Approved	10/25/95
WorldCom, Inc. d/b/a LDDS WorldCom	9/1/95	Approved	10/25/95
American Telco	9/1/95	Approved	10/25/95
MFS Intelenet of Texas, Inc.	9/1/95	Approved	11/9/95
MFS of Dallas, Inc.	9/5/95	Approved	11/21/95
MFS of Houston, Inc.	9/5/95	Approved	11/21/95
MCImetro Access Transmission Services, Inc.	9/6/95	Denied	10/25/95
Valu-Line Long Distance	10/17/95	Approved	12/20/95
Action Telcom	10/17/95	Approved	12/20/95
Coastal Telcom	10/17/95	Approved	12/20/95
Westel, Inc.	10/18/95	Approved	12/20/95
LCI International Worldwide Communications, Inc.	10/25/95	Approved	12/20/95
Plexnet, Inc.	11/06/95	Withdrawn	11/27/95
Communication TeleSystems International	11/10/95	Withdrawn	10/8/96
Metro Connection	11/14/95	Withdrawn	11/29/95
Resource Innovations Group d/b/a DFW-Direct	11/14/95	Withdrawn	11/29/95
Cable and Wireless, Inc.	11/28/95	Approved	1/24/96
Texas Comm South, Inc.	11/29/95	Approved	1/24/96
Metro-Link Telecom, Inc.	12/19/95	Approved	2/22/96
Progressive Concepts, Inc.	1/8/96	Approved	3/6/96
Nations Bell, Inc.	1/24/96	Approved	3/6/96

** Teleport Houston and TCG Dallas originally filed applications for COAs. They revised their applications to be SPCOAs following the commission's ruling in D. 14665 that SPCOAs are not prohibited from using their own telecommunications facilities for provision of services.

SPCOA APPLICATIONS AT THE PUC (CONT'D)

<i>Applicant</i>	<i>Date filed</i>	<i>Disposition</i>	<i>Date of disposition</i>
Network Operator Services	2/12/96	Approved	4/10/96
Capital Telecommunications	2/27/96	Approved	4/24/96
America's Tele-Network Corp.	2/27/96	Approved	4/24/96
NOS Communications, Inc.	2/27/96	Approved	4/24/96
AT&T Communications of the Southwest, Inc.	2/29/96	Denied	6/26/96
U.S. Telco, Inc.	3/11/96	Approved	5/8/96
USN Southwest, Inc.	3/12/96	Approved	5/8/96
U.S. Communications, Inc.	3/25/96	Approved	5/22/96
Winstar Wireless of Texas, Inc.	3/25/96	Approved	5/22/96
American Communication Services of Irving	4/2/96	Approved	6/5/96
American Communication Services of Ft. Worth	4/2/96	Approved	7/10/96
American Communication Services of Amarillo	4/2/96	Approved	6/5/96
American Communication Services of El Paso	4/2/96	Approved	7/10/96
MCImetro Access Transmission Services, Inc.	4/3/96	Denied	6/26/96
ACSI Advanced Technologies	4/4/96	Approved	6/5/96
Legacy Telecommunications Corp.	4/17/96	Withdrawn	4/23/96
Preferred Carrier Services, Inc.	4/22/96	Approved	6/26/96
GTE of the Southwest, Inc.	5/2/96	Denied	7/10/96
North American Intelcom	5/3/96	Withdrawn	6/20/96
Masters Financial Services	5/3/96	Approved	8/21/96
Austin Bestline Company	5/20/96	Approved	7/10/96
GST Texas Lightwave, Inc.	5/23/96	Approved	8/7/96
Amarillo Celltel Co.	6/5/96	Approved	8/7/96
Lone Star Net, Inc.	6/7/96	Approved	8/7/96

SPCOA APPLICATIONS AT THE PUC (CONT'D)

<i>Applicant</i>	<i>Date filed</i>	<i>Disposition</i>	<i>Date of disposition</i>
Credit Loans, Inc. d/b/a Lone Star Communications	6/11/96	Approved	8/7/96
KMC Telecom Inc.	6/24/96	Approved	8/21/96
World Access Communications	6/25/96	Approved	9/11/96
ICG Telecom Group, Inc.*	6/28/96	Approved	9/11/96
ICG Telecom Group, Inc.	6/28/96	Approved	9/11/96
NTS Communications, Inc.	7/1/96	Approved	9/11/96
Fast Connections, Inc.	7/1/96	Approved	9/11/96
Cypress Telecommunications	7/16/96	Approved	9/23/96
EZ Talk, L.L.C.	7/17/96	Approved	9/23/96
Optel (Texas) Telecom, Inc.	7/18/96	Approved	9/11/96
LCT Long Distance, Inc.	7/22/96	Approved	9/11/96
Taylor Communication Group	7/29/96	Approved	10/9/96
North American Telco	7/30/96	Approved	10/9/96
Sterling International Funding, Inc.	8/5/96	Approved	10/9/96
Choctaw Communications, L.L.C.	8/6/96	Approved	10/9/96
DMJ Communications, Inc.	8/7/96	Approved	10/9/96
Local Fone Service, Inc.	8/8/96	Approved	10/9/96
Lone Star Telephone, Inc.	8/16/96	Approved	10/24/96
Americas Conex L.L.C.	8/19/96	Approved	10/24/96
Easy Cellular, Inc.	8/20/96	Approved	10/24/96
Reitz Rentals, Inc., d/b/a Texas Teleconnect	8/26/96	Approved	10/24/96
Metro Connection, Inc.	8/26/96	Approved	10/24/96
Penthouse Suites, Inc.	9/3/96	Approved	11/26/96
WIC Services, Inc. d/b/a Local Telephone Service Company	9/4/96	Approved	11/26/96
Texas Comm South, Inc.	9/5/96	Approved	11/7/96
Call-For-Less Long Distance, Inc.	9/11/96	Approved	11/7/96

* This application is for the San Antonio metropolitan exchange area only.

SPCOA APPLICATIONS AT THE PUC (CONT'D)

<i>Applicant</i>	<i>Date filed</i>	<i>Disposition</i>	<i>Date of disposition</i>
Metro Access Networks, Inc.	9/20/96	Approved	11/7/96
Posner Telecommunications	9/30/96	Approved	11/26/96
Inter-tel Netsolutions	9/30/96	Approved	11/26/96
Access Network Services, Inc.	10/3/96	Approved	11/26/96
U.S. Online Communication, L.L.C	10/8/96	Approved	12/12/96
Midcom Communications, Inc.	10/15/96	Pending	--
Valu-Net, Inc.	10/16/96	Approved	12/12/96
Hattie Watkins	10/29/96	Withdrawn	11/25/96
FXI, Inc.	10/31/96	Pending	--
Local Com, Inc.	11/14/96	Withdrawn	12/6/96
Time Warner Connect of San Antonio	11/20/96	Pending	--
Time Warner Connect	11/20/96	Pending	--
Express Telecommunication	11/22/96	Pending	--
Accutel of Texas, Inc.	11/27/96	Pending	--
MSN Communications, Inc.	12/2/96	Pending	--
Globecom Communications	12/10/96	Pending	--
DeLoach's Home Entertainment Center	12/12/96	Pending	--

APPENDIX F

DETAILED DATA SUMMARY

Incumbent LEC Local Exchange Service Revenue - Statewide

Source: Responses to 1996 ILEC Data Requests

Residential Service Revenue:	1992	1993	1994	1995
Basket I: Basic Network Services				
-Basic Local Telecommunications Service	\$ 787,317,016	\$ 815,060,588	\$ 846,439,593	\$ 896,941,767
-Mandatory Extended Area (other than ELC)	39,816,130	38,455,160	43,454,574	44,869,908
-Expanded Local Calling (Mandatory)	-	-	299,755	3,583,258
-ISDN Service	-	-	-	-
Basket II: Discretionary Services				
-Optional Extended Area Service	16,314,046	22,724,517	28,915,755	39,889,971
-Joint User	79,626	91,632	335,875	794,813
-Custom Calling Features	118,909,179	143,086,636	153,922,933	159,821,603
-Call Control Options	15,377,636	25,225,863	70,650,457	196,862,478
Basket III: Competitive Services				
-Enhanced Services	620,403	1,394,006	2,531,533	4,057,795
-Custom Calling Features	63,117,786	54,653,514	49,437,622	49,688,793
Business Service Revenue:				
Basket I: Basic Network Services				
-Basic Local Telecommunications Service	724,601,113	765,244,358	809,031,130	866,152,065
-Mandatory Extended Area (other than ELC)	34,502,594	33,178,447	38,600,155	41,513,344
-Expanded Local Calling (Mandatory)	-	-	118,825	1,518,312
-Cellular Mobile Interconnect	27,601,082	39,218,735	43,434,222	56,784,672
-Private Pay Telephone	9,170,383	13,453,046	14,868,071	16,598,926
Basket II: Discretionary Services				
-Optional Extended Area Service	11,741,199	14,979,300	17,645,424	22,313,826
-Custom Calling Features	19,519,491	24,164,062	25,688,333	27,095,977
-Joint User	403,894	457,021	536,403	624,892
-C.O. Based PBX-Type; 75 stations or more	41,540,767	44,992,692	48,673,825	53,539,923
-C.O. Based PBX-Type; < than 75 stations	19,710,681	23,503,424	25,710,046	25,738,735
-Billing and Collection Service	79,702,675	75,912,568	76,881,335	75,695,657
-ISDN Service	511,690	776,226	2,167,611	10,938,404
Basket III: Competitive Services				
-other Mobile (including paging)	954,671	947,664	736,611	591,665
-Custom Calling Features	3,049,900	2,585,743	2,316,461	2,595,563
-Call Control Options	704,779	1,103,445	2,285,585	7,581,689
-Customized Services	3,103,200	2,984,185	8,176,292	9,808,845
-Enhanced Services	805,784	1,643,660	2,618,235	4,599,021
-Public Pay Telephone	114,507,704	117,999,127	118,003,511	115,679,151
-Private line or virtual Private line Service	78,831,226	72,881,230	65,359,501	58,427,048
-Non-Voice Switched Data Services	39,841,905	36,506,210	32,552,027	28,211,978
-Dark Fiber Service	-	662,944	3,252,953	2,318,345

Incumbent LEC Access & Long Distance Revenues - Statewide

Source: Responses to 1996 ILEC Data Requests

Network Access Services (Interstate):	1992	1993	1994	1995
End User	\$409,918,494	\$434,784,584	\$473,444,382	\$497,343,289
Carrier Common Line	250,865,154	265,041,923	283,746,577	297,353,531
Local Switching	209,782,323	229,400,950	232,413,044	250,414,875
Local Transport	207,413,394	195,364,923	201,296,556	200,703,485
Special Access	202,265,882	214,877,595	251,471,497	290,390,100
Network Access Services (Intrastate):				
Carrier Common Line	583,609,541	597,172,961	636,614,664	677,535,933
Local Switching	175,631,774	169,720,254	161,105,124	177,910,153
Local Transport	127,520,440	123,147,618	144,554,527	165,437,796
Special Access	43,839,205	59,354,417	51,015,335	58,182,934
Long Distance Services (Intrastate, IntraLATA):				
IntraLATA MTS	320,980,218	653,721,255	585,393,387	510,354,590
IntraLATA 800	6,933,217	6,213,922	6,956,763	5,580,306
IntraLATA WATS	2,442,684	1,902,837	1,125,778	1,019,746

Incumbent LEC Access Lines - Statewide

Source: Responses to 1996 ILEC Data Requests

Residential Service - Access Lines:	1992	1993	1994	1995
Basket I: Basic Network Services				
-Basic Local Telecommunications Service	6,484,545	6,687,168	6,889,365	7,143,794
-Mandatory Extended Area (other than ELC)	218,021	1,048,972	1,087,222	1,126,317
-Expanded Local Calling (Mandatory)	-	-	92,287	361,320
-ISDN Service	-	-	2	3
Basket II: Discretionary Services				
-Optional Extended Area Service	32,108	113,713	159,722	179,829
-Joint User	22,268	25,195	28,991	32,058
-Custom Calling Features	4,710,621	4,852,537	4,959,424	5,178,337
-Call Control Options	535,367	974,821	2,441,400	5,025,832
Basket III: Competitive Services				
-Enhanced Services	7,284	29,838	47,283	63,996
-Custom Calling Features	2,389,129	2,476,178	2,346,952	2,411,013
Business Service - Access Lines:				
Basket I: Basic Network Services				
-Basic Local Telecommunications Service	2,175,064	2,295,424	2,448,935	2,637,309
-Mandatory Extended Area (other than ELC)	42,166	262,181	282,064	307,559
-Expanded Local Calling (Mandatory)	-	-	47,083	110,500
-Cellular Mobile Interconnect	15,662	24,171	31,024	40,450
-Private Pay Telephone	35,726	40,490	46,030	50,101
Basket II: Discretionary Services				
-Optional Extended Area Service	6,049	21,614	30,957	37,262
-Custom Calling Features	402,852	460,601	481,600	505,454
-Joint User	4,129	4,724	5,686	4,287
-C.O. Based PBX-Type; 75 stations or more	267,404	295,630	326,510	364,587
-C.O. Based PBX-Type; < than 75 stations	99,037	114,890	121,810	116,898
-Billing and Collection Service	149,422	142,260	136,923	164,452
-ISDN Service	1,160	1,760	4,600	21,723
Basket III: Competitive Services				
-other Mobile (including paging)	3,313	2,320	1,962	1,450
-Custom Calling Features	74,529	83,653	83,936	101,901
-Call Control Options	21,757	32,795	68,503	169,868
-Customized Services	2,604	4,904	8,605	11,405
-Enhanced Services	1,029	2,770	2,927	3,806
-Public Pay Telephone	114,433	110,295	106,333	104,565
-Private line or virtual Private line Service	108,495	107,012	102,266	97,812
-Non-Voice Switched Data Services	16,908	15,099	13,746	12,616
-Dark Fiber Service	-	182	241	162



APPENDIX G

OVERVIEW OF WIRELESS SERVICES

WHAT IS CELLULAR?

A cellular system utilizes radio airwaves to transmit voice conversation or data. A very sophisticated two-way radio link is maintained by the cellular service provider. Individual radio frequencies are used again and again, throughout a city or county, to service a large number of people. Instead of having a few radio channels that everyone must share -- like a CB radio -- cellular channels are reused concurrently in nearby areas without callers sharing their conversations.

The process begins by carving up a city or county into small areas called cells; hence, the name "cellular". Cells can range in size from one mile to 20 miles in diameter, depending upon the terrain and capacity needs. Each cell has a low-power radio transmitter/receiver, which is connected through the cellular company's switching center to the local phone network. By controlling the transmitter power, the range of the radio frequencies can be shaped to that single cell. The limitation on transmitter power also means that the same frequencies can be used in another cell not far away, with little chance of interference.

Modern computer technology allows for the mobility of cellular phones. As one moves from one cell to another, a computerized switch monitors the progress and signal strength of the cell to allow the switch to identify the particular cell whose radio transmitter should be used for each portion of the call. The switch then transfers the call from the radio channel in one cell to another channel in the next cell, so quickly that it is not noticeable.

TYPES OF CELLULAR PHONES

Wireless equipment can be categorized into three types. Transportable phones (commonly referred to as "bag phones") have a 3-watt power source and are small enough to be carried by the cellular customer. Small hand-held cellular phones, or portable phones, transmit at about 0.6 watts of power. Portable phones are by far the most popular and represent 90 percent of cellular phones on the market. Mobile, or car phones, are permanently installed in a vehicle, transmit at about 3 watts of power, run off the vehicle's battery, and use an external antenna.

HOW ARE CELLULAR MARKETS DESIGNATED?

Cellular providers serve both metropolitan and rural markets. Two licenses serve each of the 306 urban areas, deemed Metropolitan Statistical Areas (MSAs), and each of the 428 Rural Service Areas (RSAs). MSAs cover 75 percent of the population and 20 percent of the land mass, while RSAs cover 25 percent of the population and 80 percent of the land mass.¹ MSA and RSA markets were licensed separately because of basic demographic and economic differences between the two. However, the distinctions between the two markets blur if one compares small MSA markets to larger RSA markets. Companies competing in RSA markets have limitations, overall, due to limited bandwidth space or high deployment costs.

From a demographic perspective:²

- ◆ *The average population for MSAs is four times higher than RSAs (635,000 versus 138,000), and with a population density over six times greater (322 versus 48).*
- ◆ *MSAs also have a greater proportion of high income households than RSAs.*
- ◆ *MSAs, on average, have more daily interstate vehicle miles than RSAs (3,261 versus 678). It would not be unusual for an RSA to derive 50 percent of its cellular revenue from roaming traffic in initial years of operation.*
- ◆ *MSAs have, on average, five times as many businesses than RSAs, and a higher business to population ratio.*

WHAT IS PCS?

PCS is the acronym for Personal Communications Services. The FCC defines PCS "as a family of mobile or portable radio communications services which could provide services to individuals and business, and be integrated with a variety of competing networks."³ PCS technology is similar to digital cellular in that both transport conversations by digital signals and offer greater security of conversations. However PCS signal waves are broadcast on a higher frequency on the radio spectrum and can

¹ Cellular Telecommunications Association (CTIA), *The Wireless Factbook: 1996* (Washington, D.C., Spring 1996), p. 3.

² Mobile Communications Division of Markey-Taylor Associates - Economic and Management Consultants International, Inc. (MTA-EMCI), *The U.S. Cellular Marketplace: 1995* (Washington, D.C., 1995), p. 38.

³ Telecommunications Industries Analysis Project, Presentation at the February 1996 NARUC Meeting, (Washington, D.C.), p. 3.

accommodate a larger number of conversations at one time. Because of the higher frequency, its signal weakens more quickly than analog cellular, which operates at a frequency of 800 MHz.

THE FCC'S PCS SPECTRUM AUCTION

The recent FCC broadband auction was dominated by a limited number of players that collectively acquired two-thirds of the available licenses. These bidders included Regional Bell Operating Companies (RBOCs), long-distance carriers, and cable companies. The top bidders dominated the auction with strong consolidation strategies. By consolidating, these players can 1) reduce operating expenses; 2) work with cable companies to provide local loop service and capture existing customer bases; 3) gain market share through national branding strategies; and 4) use economies of scale through regional or nationwide coverage. This partnering gives wireless providers access to core customer bases and the opportunity to offer packaged services to residential and business customers which translates into potential threats to the LECs.

Top Five Nationwide PCS Auction Winners:⁴

- ◆ **WirelessCo, L.P.** - Gained 29 markets with a bid of \$2.1 billion. Comprised of Sprint, and three of the largest cable companies, Cox Communications, Comcast, and Telecommunications, Inc.
- ◆ **AT&T Wireless PCS** - Obtained 21 markets with a bid of \$1.8 billion.
- ◆ **Primeco L. P.** - Won 11 markets with a bid of \$1.1 billion. A consortium of AirTouch Communications, Bell Atlantic, NYNEX and U.S. West.
- ◆ **Pacific Telesis Mobile** - Gained 2 markets and a bid of \$690 million.
- ◆ **GTE Macro Communications** - Gained 4 markets with a bid of \$390 million.

⁴ MTA-EMCI, *op. cit.*, p. 318 - 320.

Table G.1: PCS Broadband Auction Results in Texas⁵

Market Number	Market Name	Bidder	Bid Amount	1990 Population	Value per Population
7	Dallas-Ft Worth	PCS Primeco, L.P.	\$87,500,578	9,694,157	\$9.03
7	Dallas-Ft Worth	Wireless Co., L.P.	\$88,444,000	9,694,157	\$9.12
14	Houston	American Portable Telecommunications	\$83,888,837	5,190,849	\$16.16
14	Houston	PCS Primeco, L.P.	\$82,680,425	5,190,849	\$15.93
33	San Antonio	Wireless Co., L.P.	\$54,394,123	2,986,524	\$18.21
33	San Antonio	PCS Primeco, L.P.	\$51,950,059	2,986,524	\$17.39
39	El Paso-Albuquerque	Western PCS Corporation	\$8,634,030	2,113,890	\$4.08
39	El Paso-Albuquerque	AT&T Wireless PCS, Inc.	\$8,634,000	2,113,890	\$4.08

Cellular Tower Siting

Recently, some states have turned their regulatory attention toward cellular tower siting and zoning issues. Officials of small towns and counties are faced with the challenge of balancing technological advancement and maintaining aesthetic beauty of communities. Today there are roughly 20,000 transmission facilities for mobile phones. By the year 2000, the industry estimates there will be 115,000 facilities nationwide.⁶

The cellular antennae currently being constructed consist of those mounted on an existing structure (i.e. water tower, office building, utility pole) and those mounted on new tower facilities ranging in height from 30 to 250 feet tall. Local officials, in the wake of the PCS license auctions, have seen a significant increase in the number of applications for construction of transmission sites.

Some jurisdictions have lost court battles against the telecommunications carriers. Telecommunications companies have used in-house engineers and consultants to argue that their chosen sites are the only technologically feasible ones. This argument puts small towns and rural areas at a disadvantage because they cannot hire their own experts.

Rather than block the antennas, some jurisdictions are looking for ways to profit from the companies' use of the public rights of way -- for example, by demanding a share of the companies' revenues.⁷ As competition in the cellular market increases along with the number of providers, we can expect more involvement from local officials trying to balance the interests of homeowners and telecommunications companies.

⁵ *Ibid.*

⁶ John Healey, "Towering Controversies," *Governing*, February 1996, p.37.

⁷ *Ibid.*

Highlights of Cellular Tower Siting Regulation:⁸

Tennessee: During the 99th General Assembly, **H.B. 1993** was introduced authorizing the Tennessee Regulatory Authority to impose a \$10,000 civil penalty on telecommunications companies which build cellular phone relay towers within one mile of existing tower; the same penalty applies to the owner of an existing tower who refuses to let a competitor share space on an existing tower.

Ohio currently requires public utilities planning to construct a tower in an area zoned for residential use 1) to notify any property owners of its intent to construct such a tower by certified mail, and 2) to provide written notice to the board of trustees of the township of such intent to construct a tower. During the 1995-96 Ohio Regular Session, **H.B. 291** was introduced conferring zoning authority to counties over cellular towers that are owned or used by public utilities, and proposed to be located in areas zoned for residential use.

In **Kentucky** during its 1996 Regular Session, the legislature introduced **H.B. 20** requiring utilities to submit all proposals to construct a cellular antenna tower to the local planning commission before applying to the Public Service Commission for approval. It also authorizes the Public Service Commission to defer approval of an application until the local planning commission has taken action.

During **South Carolina's** 1995-96 statewide session, **S.B. 843** was introduced supporting the Elmwood Park Neighborhood Association and other citizens and supporters of Elmwood Park and their efforts to prevent the City of Columbia from issuing a permit allowing Bell Atlantic Mobile to erect a cellular tower in the Historic Park.

⁸ Legislative Information System Database, National Conference of State Legislatures, Denver CO, (Bob Boerner, March 27, 1996).



APPENDIX H

INTERSTATE USF

HIGH COST ASSISTANCE PROGRAM

The USF's High Cost Assistance Program¹

On a nationwide average basis, approximately 27 percent of local exchange carrier (LEC) local loop costs are allocated to the interstate (federal) jurisdiction,² and 73 percent are allocated to the state jurisdiction. The average cost per loop, however, varies significantly among LECs. The FCC's high-cost assistance program enables LECs with very high per-loop costs to allocate more of their loop costs to the interstate jurisdiction, thus recovering these costs from interexchange carriers (IXCs) and leaving less costs to be recovered through state rates. In this manner, the high-cost assistance program operates to hold down local rates and thereby furthers one of the most important goals of federal and state regulation -- the preservation of universal telephone service. Consequently, the funding of this high-cost assistance is known as the Universal Service Fund (USF). This section of the report outlines the high-cost assistance program and provides and discusses data for this program. Tables H.1 and H.2 show the formula for calculating high-cost assistance and the payments to Texas' incumbent LECs (ILECs).

The FCC regulates the recovery by LECs of that portion of their total costs associated with the provision of interstate services. The states regulate the recovery of costs associated with intrastate services (local service and state long distance services). The FCC's high-cost assistance program relates to the allocation between the state and interstate jurisdictions of non-traffic sensitive (NTS) "local loop costs" -- a term that refers to the costs of outside telephone wires, poles, and other facilities that link each telephone customer's premises to the public switched telephone network. These costs are allocated between the state and interstate jurisdictions because all local loops can be used for making and receiving state and interstate telephone calls. The Universal Service Fund payments are made on a study area basis.³

The FCC's high-cost assistance program was implemented during a period in which the basic interstate allocation of loop costs was shifted from a level based on the

¹ *FCC Monitoring Report*, CC Docket No. 86-339, May 1996.

² Of this amount, approximately 25 percent is a direct allocation by the transitional subscriber plant factor, and approximately 2 percent is covered by the universal service fund.

³ A study area is an operating company's operations in one state.

Subscriber Plant Factor (SPF) to a flat allocation factor of 25 percent. Both of these changes were phased in over the same eight-year transition period, ending in 1993.

In December 1993, the FCC, at the recommendation of the Joint Board, imposed a cap on Universal Service Fund payments for 1994 and 1995. The cap is indexed to the rate of growth in the national total of working exchange loops. It is being implemented by adjusting the national average cost per loop used to calculate each study area's high-cost assistance from the true average value to whatever base value is required to achieve the cap. For 1995 payments, the cap was achieved by adjusting the base value cost per loop from the national average of \$242.95 to \$245.78. Although the FCC extended the cap to cover payments for 1996, the current amount of the payments is below the cap.

The FCC's high-cost assistance program is administered by the National Exchange Carrier Association (NECA). As part of the administration of the program, NECA collects certain cost data from LECs that provide service to approximately 98 percent of the nation's subscribers.⁴ Each year NECA collects NTS cost and loop data from the previous year, and uses it to distribute high-cost assistance in the following year. These reports are filed with the FCC in CC Docket 80-286.

Each year NECA submits detailed account data used to calculate the unseparated revenue requirement per loop for each study area which settles on a cost basis, and total attributed revenue requirements for study areas that settle on an average schedule basis. In their filings since 1993, in addition to submitting such information for the latest year, NECA also submitted revised information for the four preceding years. The detailed account data are not reported here, but the most recent revision of the data for each year since 1988 is available in electronic form on the FCC-State Link electronic bulletin board.⁵

⁴ These carriers settle on a cost basis. Costs for the remaining LECs, which settle on an average schedule basis, are attributed by NECA on the basis of those carriers' average number of loops per exchange.

⁵ The FCC-State Link bulletin board can be accessed via the Internet at <http://www.fcc.gov>.

Table H.1: Interstate USF High-Cost Formula

Cost Range As % of National Average	% Expense Adjustment Within Range
<i>Study Areas with Over 200,000 Loops</i>	
0% - 115%	0%
115% - 160%	10%
160% - 200%	30%
200% - 250%	60%
250% and above	75%
<i>Study Areas with 200,000 Loops or Fewer</i>	
0% - 115%	0%
115% - 150%	65%
150% and above	75%

Source: FCC Monitoring Report, CC Docket No. 83-1376, May 1996

Interstate USF Payments

Table H.2: Interstate USF Payments to Texas ILECs

In Order of Monthly Support Per Line Data From 5/96 Monitoring Report IOU's 36, CO-OP's 25	Access Lines in Texas	Annual USF Revenues 1996	Revenue per Access Line
Alenco Communications	798	\$ 828,970	\$ 1,038.81
Big Bend Telephone Co.	4,129	4,225,143	1,023.28
Border to Border Communications	32	162,771	5,086.59
Brazoria Telephone Co.	5,490	1,806,016	328.96
Brazos Telephone Cooperative	1,156	601,360	520.21
Cameron Telephone Co.	1,127	253,177	224.65
Cap Rock Telephone Co.	2,601	530,740	204.05
Central Telephone Co. of Texas (Centel)	165,948	1,605,750	9.68
Central Texas Telephone Cooperative	4,019	1,884,176	468.82
Coleman County Telephone Cooperative	1,946	364,714	187.42
Colorado Valley Telephone Cooperative	5,529	1,291,048	233.50
Comanche County Telephone Co.	5,146	156,530	30.42
Community Telephone Co.	1,597	304,348	190.57
Contel (owned by GTE Southwest)	197,310	15,211,067	77.09
Cumby Telephone Cooperative	663	102,483	154.57
Dell Telephone Cooperative	608	1,195,673	1,966.57
E.N.M.R. Telephone Cooperative	832	-	-
Eastex Telephone Cooperative	24,080	3,756,293	155.99
Electra Telephone Co.	1,691	492,537	291.27
Etex Telephone Cooperative	10,780	560,045	51.95
Five Area Telephone Cooperative	1,457	927,307	636.45
Fort Bend Telephone Co.	24,751	767,509	31.01
Ganado Telephone Co.	1,402	555,865	396.48
GTE Southwest	1,276,665	5,060,253	3.96
Guadalupe Valley Telephone Cooperative	21,262	2,293,420	107.86
Hill Country Telephone Cooperative	11,332	1,616,167	142.62
Industry Telephone Co.	1,837	517,841	281.89
La Ward Telephone Exchange	1045	355,979	340.65
Lake Dallas Telephone Co.	5,619	1,012,851	180.25
Lake Livingston Telephone Co.	1,081	96,738	89.49
Lipan Telephone Co.	1036	297,715	287.37
Lufkin-Conroe Telephone Exchange	81,615	2,592,356	31.76
Mid-Plains Rural Telephone Cooperative	2,279	655,702	287.71
Muenster Telephone Corp. of Texas	3,037	429,469	141.41
Century Tel Co of Port Aransas	3,331	247,476	74.29
North Texas Telephone Co.	793	18,637	23.50
Peoples Telephone Cooperative	8,501	\$ 1,077,754	\$ 126.78

In Order of Monthly Support Per Line Data From 5/96 Monitoring Report IOU's 36, CO-OP's 25	Access Lines in Texas	Annual USF Revenues 1996	Revenue per Access Line
Poka-Lambro Telephone Cooperative	3,341	838,799	251.06
Riviera Telephone Co.	985	371,724	377.38
Century Tel Co of San Marcos	25,017	1,031,544	41.23
Santa Rosa Telephone Cooperative	1,576	467,043	296.35
South Plains Telephone Cooperative	4,119	258,878	62.85
Southwest Texas Telephone Co.	3,366	1,278,204	379.74
Tatum Telephone Co.	862	364,425	422.77
Taylor Telephone Cooperative	5,819	676,850	116.32
Texas-ALLTEL	22,579	4,692,305	207.82
United Tel. Co. of Texas (owned by Centel)	128,690	19,219,494	149.35
Valley Telephone Cooperative	5,223	3,478,987	666.09
Wes-Tex Telephone Cooperative	3,111	251,220	80.75
West Texas Rural Telephone Cooperative	1,871	1,151,422	615.40
XIT Rural Telephone Cooperative	1,146	1,194,928	1,042.69
Totals	9,820,671	\$ 89,131,703	



APPENDIX I

SERVICES FOR SCHOOLS, LIBRARIES, TELEMEDICINE

Services Provided by Subtitle H Companies:

**Southwestern Bell Services Provided Under PURA95 § 3.359
(as reported in Annual Update 9/1/96)**

City/Community Requesting the Service	Public Entity Requesting the Service	Type of Network Service Requested
<u>Educational Institutions</u>		
Houston	Aldine ISD	T1
Alief	Alief ISD	T1
Allison	Allison ISD	Internet
Alpine	Alpine ISD	T1, NRS
Alvin	Alvin ISD	T1
Amarillo	Amarillo College	T1
Angleton	Angleton ISD	T1
Austin	Austin Community College	T1
Austin	Austin ISD	T1
Bandera	Bandera ISD	T1
Bartlett	Bartlett ISD	Internet
Bastrop	Bastrop ISD	T1
Beaumont	Beaumont ISD	T1
Beeville	Bee County College	T1, NRS
Haltom City	Birdville ISD Library	T1
Clute	Brazosport ISD	T1
Breckenridge	Breckenridge ISD	Internet
Carrizo Springs	Carrizo Springs CISD	Internet
Brownsville	Catholic Diocese of Brownsville	T1
Nacogdoches	Central Heights ISD	T1
Tyler	Chapel Hill ISD	T1
Cisco	Cisco Junior College	T1
Texas City	College of the Mainland	T1
Conroe	Conroe ISD	T1
Houston	Cypress Fairbanks ISD	T1
Dallas	Dallas ISD	T1

Southwestern Bell Services Provided Under PURA95 § 3.359

City/Community Requesting the Service	Public Entity Requesting the Service	Type of Network Service Requested
<u>Educational Institutions (cont'd)</u>		
Deer Park	Deer Park ISD	T1
Corpus Christi	Del Mar College	T1
Donna	Donna ISD	Internet
Duncanville	Duncanville ISD	T1
Marshall	East Texas Baptist University	T1
Mesquite	East Texas State University	T1
El Paso	El Paso Community College	T1
El Paso	El Paso ISD	T1
Fort Worth	Fort Worth ISD	T1
Borger	Frank Phillips College	T1
Denison	Grayson County Jr. College	T1
Harlingen	Harlingen CISD	T1
Austin	Higher Education Coordinating Board	T1
Dallas	Highland Park ISD	T1
Hillsboro	Hill College	T1
Houston	Houston Community College	T1
Big Spring	Howard College	T1
Iowa Park	Iowa Park CISD	T1
Ira	Ira ISD	Internet
Iraan	Iraan Sheffield ISD	T1, NRS
Katy	Katy ISD	T1
Kenedy	Kenedy ISD	T1
Kermit	Kermit High School	Internet
La Marque	La Marque ISD	T1
Orange	Lamar University-Orange	T1
Leander	Leander ISD	T1
Los Fresnos	Los Fresnos CISD	Internet
Lubbock	Lubbock Christian University	T1
McAllen	McAllen ISD	T1
McGregor	McGregor ISD	T1
McKinney	McKinney ISD	T1
Mercedes	Mercedes ISD	Internet
Midland	Midland ISD	T1
Corsicana	Navarro College Main Campus	T1
San Antonio	Northeast ISD	T1
San Antonio	Our Lady of the Lake	T1
Paris	Paris Junior College	T1
Pharr	Pharr-San Juan-Alamo ISD	T1

Southwestern Bell Services Provided Under PURA95 § 3.359

City/Community Requesting the Service	Public Entity Requesting the Service	Type of Network Service Requested
<u>Educational Institutions (cont'd)</u>		
Prairie View	Prairie View A & M	T1
Queen City	Queen City ISD	T1
Universal City	Randolph Field ISD	T1
Ranger	Ranger ISD	Internet
Amarillo	Region XVI Education Service Center	T1
Lubbock	Region XVII Education Service Center	T1
San Antonio	Region XX Education Service Center	T1
Houston	Rice University	T1
Richardson	Richardson ISD	T1
Amarillo	River Road ISD	T1
Rotan	Rotan ISD	Internet
San Antonio	San Antonio ISD	T1
San Elizario	San Elizario ISD	T1, NRS
Pasadena	San Jacinto College	T1
Dallas	Science Place	T1
Seminole	Seminole ISD	Internet
Seminole	Seminole Primary School	Internet
El Paso	Socorro ISD	T1, NRS
Lubbock	South Plains College	T1
McAllen	South Texas Community College	T1
Uvalde	Southwest Texas Junior College	T1, Internet
Keene	Southwestern Adventist College	T1
Houston	Spring ISD	T1
Houston	St. Agnes Academy	T1
San Antonio	St. Mary's University	T1
Beeville	St. Phillips Episcopal School	Internet
Nacogdoches	Stephen F. Austin University	T1
Alpine	Sul Ross State University	T1
Fort Worth	Tarrant County Jr. College	T1
Hurst	Tarrant County Jr. College	T1
Taylor	Taylor ISD High School	T1
Temple	Temple Jr. College	T1
Dallas	Texas A & M	T1
Houston	Texas A & M	T1
San Antonio	Texas A & M	T1
Galveston	Texas A & M	T1
Abilene	Texas A & M	T1
Austin	Texas A & M	T1

Southwestern Bell Services Provided Under PURA95 § 3.359

City/Community Requesting the Service	Public Entity Requesting the Service	Type of Network Service Requested
<u>Educational Institutions (cont'd)</u>		
Fort Worth	Texas Christian University	T1
Austin	Texas Education Agency	T1
Seguin	Texas Lutheran College	T1
Amarillo	Texas Tech University	T1, NRS
Tomball	Tomball ISD	T1
Terrell	Trinity Valley Community College	Internet
Tyler	Tyler Junior College	T1
Austin	U T System	T1
Dallas	U T System	T1
Houston	U T System	T1
Longview	U T System	T1
Midland	U T System	T1
Odessa	U T System	T1
San Antonio	U T System	T1
Waco	U T System	T1
Laredo	United ISD	T1
San Antonio	University Health System	T1
Houston	University of Houston	T1
Corpus Christi	University of Houston	T1
Belton	University of Mary Hardin Baylor	T1
Austin	University of Texas	T1
Arlington	University of Texas at Arlington	T1
Brownsville	University of Texas at Brownsville	T1
Dallas	University of Texas at Dallas	T1
Tyler	University of Texas at Tyler	T1
Amarillo	University of Texas Center for Plutonium	T1
Odessa	University of Texas Permian Basin	T1
McAllen	UT System ATC	T1
Victoria	Victoria College	T1
Plainview	Wayland Baptist University	T1
McAllen	Weslaco ISD	T1
Wharton	Wharton County Junior College	T1
Wharton	Wharton ISD	T1
Wortham	Wortham ISD	Internet
El Paso	Ysleta ISD	T1
Zapata	Zapata County ISD	Internet

Southwestern Bell Services Provided Under PURA95 § 3.359

City/Community Requesting the Service	Public Entity Requesting the Service	Network Service Requested
<u>Hospitals</u>		
Dallas	Baylor	T1
Houston	Baylor College of Medicine	T1
Dallas	Baylor Medical Center	T1
Waxahachie	Baylor Medical Center at Waxahachie	T1
Victoria	Citizens Medical Center	T1
McKinney	Collin County MHMR Center	T1
Dallas	Doctor's Hospital of Dallas	T1
Tyler	East Texas Medical Center	T1, NRS
Athens	East Texas Medical Center	T1, NRS
Pittsburg	East Texas Medical Center	T1, NRS
Mt. Vernon	East Texas Medical Center	T1, NRS
Houston	Harris County Hospital District	T1
Houston	Hermann Hospital	T1
Waco	Hillcrest Baptist Medical Center	T1
Fort Worth	Huguley Hospital	T1
Houston	M. D. Anderson	T1
Spring	Memorial Hospital System	T1
Houston	Memorial Hospital System	T1
Dallas	Methodist Hospital	T1
Houston	Methodist Hospital	T1
Lubbock	Methodist Hospital	T1
Dallas	Parkland Hospital	T1
Dallas	Presbyterian Hospital	T1
Waco	Providence Hospital	T1
San Antonio	Santa Rosa Healthcare Corporation	T1
Temple	Scott and White	T1
Kingsville	Spohn Kleberg Hospital	T1
Paris	St. Joseph's Hospital	T1
Houston	St. Luke's Home Health (SLEH)	T1
Fort Worth	Tarrant County Hospital	T1
Dallas	Texas State of MHMR	T1
Amarillo	Texas Tech Healthnet	T1
Lubbock	Texas Tech University Health Science Center	T1, NRS
Midland	Texas Tech University Health Science Center	T1, NRS
Denison	Texoma Medical Center	T1
Austin	Travis County MHMR	T1
Edinburg	Tropical Texas Center for MHMR	T1
San Antonio	University of Texas Health Science Center	T1, NRS
Houston	University of Texas Health Science Center	T1, NRS
Galveston	University of Texas Medical Branch	T1
Dallas	University of Texas Medical Branch	T1
Houston	University of Texas Medical Branch	T1
Huntsville	University of Texas Medical Branch	T1

Southwestern Bell Services Provided Under PURA95 § 3.359

City/Community Requesting the Service	Public Entity Requesting the Service	Network Service Requested
<u>Libraries</u>		
Dallas	City of Dallas General Fund	T1
Waco	City of Waco	T1
Carrizo Springs	Dimmit County Public Library	Internet
Lockhart	Dr. Eugene Clark Library	Internet
Elgin	Elgin Public Library	Internet
Gruver	Gruver Library	Internet
Hondo	Hondo Public Library	Internet
Big Spring	Howard County Public Library	Internet
Lampasas	Lampasas Public Library	Internet
Graham	Library of Graham	Internet
Rockdale	Lucy Hill Patterson Memorial	Internet
Brenham	Nancy Carol Roberts Memorial Library	Internet
Pearsall	Pearsall Public Library	Internet
Poteet	Poteet Public Library	Internet
Pleasanton	Pleasanton Public Library	Internet
Quemado	Quemado Public Library	Internet
Shamrock	Shamrock Public Library	Internet
Smithville	Smithville Public Library	Internet
Taylor	Taylor Public Library	Internet
Wharton	Wharton County Library (Wharton Branch)	Internet
El Campo	Wharton County Library (El Campo Branch)	Internet
Zapata	Zapata County Public Library	Internet

TI = Megalink III

DS3 = Megalink Custom

NRS = Network Reconfiguration Service

BEVS = Broadband Education Video Service

LAN = Native LAN Interconnection Services

GTE
HOUSE BILL 2128 DISCOUNTED RATE CUSTOMERS
AS OF MAY 29, 1996 - SCHOOLS, LIBRARIES, HOSPITALS
(as reported in response to ILEC Data Request)

CITY	CUSTOMER
Carrollton	Carrollton ISD
Agua Dulce	Agua Dulce ISD
Ballinger	Ballinger ISD
Blanco	Blanco ISD
Brady	Brady ISD
Brownwood	Brownwood ISD
Burnet	Burnet ISD
Wolfforth	Casey ISD
Nevada	Community ISD
Carrollton	Country Place Elementary
Rowlett	Collins Lake Pointe
Lewisville	Dale Jackson Vocational Center
Wimberley	Danforth High School
Bonham	Dodd City ISD
Dumas	Dumas High School
Mt. Vernon	East Texas Medical Center
San Angelo	Education Service Center
Kilgore	Education Service Center
Denton	Education Service Center
Wolfforth	Friendship Intermediate
Garland	Garland ISD
Gary	Gary ISD
Granger	Granger ISD
Garland	Handley Elementary
Simms	James Bowie School
Leonard	Leonard ISD
Lewisville	Lewisville ISD

CITY	CUSTOMER
Lewisville	Lewisville Learning Center
Lexington	Lexington ISD
DeKalb	Molta School
Carrollton	Newman Smith High School
Orange Grove	Orange Grove ISD
Burnet	Pierce Street Elementary
Plano	Plano ISD
Carrollton	R. L. Turner High School
Hurlwood	Reese Elementary
Robstown	Robstown ISD
Dallas	Sheffield Intermediate School
Sherman	Sherman ISD
Simms	Simms School
Texarkana	St. James Day School
Garland	Stephens Elementary
Dumas	Sunset Elementary
Taft	Taft ISD
Tulia	Tulia High School
Denton	UNT - General Academics Willis Library
Van Alstyne	Van Alstyne ISD
Van Alstyne	Van Alstyne Public Library
Wimberley	Village Library
Garland	Williams Elementary School

The following institutions are currently being served by **GTE Southwest** with advanced technology and are provided special rate treatment pursuant to the provisions of PURA:

School	Service
College Station ISD	Frame Relay
Bryan ISD	Frame Relay
Caldwell ISD	Frame Relay
Dime Box ISD	Frame Relay
Giddings ISD	Frame Relay
Carroll ISD	MMDS
Hill-Navarro Consortium	MMDS
Lewisville ISD	MMDS
San Angelo ISD	Frame Relay
Glen Rose ISD	MMDS
Garland ISD	Frame Relay
Plano ISD	Frame Relay
Andrews ISD	MMDS
Whitehouse	MMDS

Hospitals

Baylor Health Care	ISDN
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Libraries

Plano Library	Frame Relay
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In addition to the above list, GTE is currently working with over 20 additional school districts on education proposals.

ISD = Independent School District
MMDS = Multi Media Data Services
ISDN = Integrated Services Digital Network

Services Provided by Subtitle I Companies:

SPRINT / UNITED TELEPHONE COMPANY OF TEXAS

Customer	Exchange	Service	Description
East Texas Medical Center	Athens	DS-1	Telemedicine
East Texas Medical Center	Athens	DS-1	Telemedicine
East Texas State University	Commerce	DS-1	Distance Learning
East Texas State University	Commerce	DS-1	Distance Learning
Groesbeck ISD	Groesbeck	DS-1	Distance Learning
LEDNET	Groesbeck	DS-1	Distance Learning
Mabank ISD	Mabank	DS-1	Distance Learning
Mabank ISD	Mabank	DS-1	Distance Learning
Navasota ISD	Navasota	DS-1	Distance Learning
Presbyterian Hospital	Mabank	DS-1	Telemedicine
Presbyterian Hospital	Kaufman	DS-1	Telemedicine
Presbyterian Hospital	Kaufman	DS-1	Telemedicine
Presbyterian Hospital	Kaufman	DS-1	Telemedicine
Texas Dept of Criminal Justice	Tenn. Clny.	DS-1	Distance Learning
Texas A&M University	Commerce	DS-1	Distance Learning
Texas A&M University	Stephenville	DS-1	Distance Learning
Texas Women's University	Commerce	DS-1	Distance Learning
UTMB Galveston	Gatesville	DS-1	Telemedicine
East Texas State University	Commerce	DS-1	Distance Learning
Tarleton State University	Stephenville	DS-1	Distance Learning
University of Texas at Tyler	Palestine	DS-1	Distance Learning

ALLTEL / SUGAR LAND TELEPHONE COMPANY

Customer	Address/Entity	Type Installed
Wharton County Junior College	911 E. Boling Hwy	T1.5
Herman Hospital	6411 Fannin St.	T1.5
Herman Hospital	6411 Fannin St.	T1.5
George Memorial Library	1001 Golfview Richmond, TX	T1.5
Memorial Hospital	7600 Beechnut	T1.5

APPENDIX J

LISTING OF ACRONYMS

AAV	Alternative Access Vendor; see also CAP
ACTA	America's Carriers Telecommunications Association
ALI	Automatic Line Identification
ALJ	Administrative Law Judge
ALT	Alternative Line Transport; see also CAP
ANI	Automatic Number Identification
ARMIS	Automated Reporting Management Information System
BOC	Bell Operating Company
BRI	Basic Rate Interface (ISDN)
BTA	Basic Trading Area
CAP	Competitive Access Provider
CCL	Carrier Common Line
CCN	Certificate of Convenience and Necessity
CLEC	Competitive Local Exchange Carrier
COA	Certificate of Operating Authority
CPNI	Customer Proprietary Network Information
CPE	Customer Premises Equipment
CSW	Central and South West Corp.
DBS	Digital Broadcasting Satellite/System
DCTU	Dominant Certificated Telecommunications Utility

DOJ	United States Department of Justice
E 9-1-1	Enhanced 9-1-1 Service
EAS	Extended Area Service
ELCS	Extended Local Calling Service
EMS	Extended Metropolitan Service
EPRI	Electric Power Research Institute
ETC	Exempt Telecommunications Carrier
FBC	Facilities-Based Carrier
FCC	Federal Communications Commission
FERC	Federal Energy Regulatory Commission
FTA96	Federal Telecommunications Act of 1996, Public L. No. 104-104, 110 Stat. 56 (1996) (to be codified at 47 U.S.C. §§151 <i>et seq.</i>)
GTE	General Telephone and Electronics
HFC	Hybrid Fiber-Coaxial Cable
HHI	Hirshman-Herfindahl Index
ILEC	Incumbent Local Exchange Carrier
INP	Interim Number Portability
IXC	Interexchange Carrier
IXCDR	Interexchange Carrier Data Request
kbps	kilobits per second
LAN	Local Area Network
LATA	Local Access and Transport Area
LEC	Local Exchange Carrier

LECDR	Local Exchange Carrier Data Request
LRIC	Long Run Incremental Cost
LS	Local Switching
LSP	Local Service Provider
MAN	Metropolitan Area Network
MFJ	Modification of Final Judgment
MMDS	Multichannel, Multipoint Distribution Service
MSA	Metropolitan Statistical Area
MTA	Major Trading Area
NECA	National Exchange Carrier Association
NOI	Notice of Inquiry
NTS	Non-Traffic Sensitive (Cost)
OPC	Office of Public Utility Counsel
OSP	Operator Service Provider or Outside Plant
PBX	Private Branch Exchange
PCN	Personal Communications Network
PCS	Personal Communications Service
PIC	Primary Interexchange Carrier
POP	Point of Presence
PPO	Private Payphone Owner
PRA	Primary Rate Access (Canadian term for PRI)
PRI	Primary Rate Interface (ISDN)
PSAP	Public Service Answering Point

PSP	Payphone Service Provider
PTS	Pay Telephone Service
PUC	Public Utility Commission of Texas
PUHCA	Public Utility Holding Company Act of 1935, 15 U.S.C. §§ 79 to 79z (1981; Supp. 1996)
PURA95	Public Utility Regulatory Act of 1995, Texas Civil Statutes, Article 1446c-0 (Vernon Supp 1996)
RBOC	Regional Bell Operating Company
RMTS	Residential Multi-Tenant Service
RSA	Rural Service Area
RUS	Rural Utilities Service
SLC	Subscriber Line Charge
SLEC	Small Local Exchange Carrier
SMA	Service Market Area
SMSA	Standard Metropolitan Statistical Area
SOAH	State Office of Administrative Hearings
SPCOA	Service Provider Certificate of Operating Authority
SPF	Subscriber Plant Factor
STS	Shared Tenant Service
SWB	Southwestern Bell
TELRIC	Total Element Long Run Incremental Cost
TIF	Telecommunications Infrastructure Fund
TOCSIA	Telephone Operator Consumer Services Improvement Act, 47 U.S.C. § 226 (1991)

TRS	Telecommunications Relay Service
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TSLRIC	Total Service Long Run Incremental Cost
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USF	Universal Service Fund
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VON	Voice Over Net
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VRI	Video Relay Interpreting
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WAN	Wide Area Network
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